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THE BUILDING, EQUIPMENT AND ADMINISTRATION OF SCHOOLS

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The Curriculum and the School Plant Must Be Maintained

*The public will react intelligently to facts
rather than to sentiment, and schools must
meet the present crisis on an intelligent basis*

By FRANK G. PICKELL, Superintendent of Schools, Montclair, N. J.

AT THE moment public education everywhere is confronted with the problem of reducing costs. It may be said that we are now in the process of deflating our budgets. In many cities costs have already been radically reduced by one means or another, but it cannot be said that the end has been reached. In cities where reductions have already been effected, still greater economies are in the offing.

The cry for reductions is still long, loud and insistent. The reason is not hard to find. Taxes are not being paid. Income has suddenly been greatly curtailed. Cities cannot continue to borrow indefinitely against unpaid taxes, and so they find themselves without adequate means to support the school program on the 1929 level. To make the situation worse, the demands upon the schools for educational opportunity have steadily increased since 1929.

No matter what the form of taxation or the method of state support, income has been curtailed. The crisis cannot be charged to obsolete systems of financial support, though it is recognized how notoriously bad many of these systems are. The fact remains that in times of depression income is reduced, both public and private.

So we are faced with the necessity of reducing school costs. We cannot escape this conclusion, nor

can we temporize with the stern facts of the situation. We are challenged to do something about it, and what we do and how we do it will indicate the character of our leadership. We cannot condone failure to conserve the schools by placing the blame elsewhere. We must exercise constructive leadership in a marked degree, not only in shaping decisions as to policy but in effecting reorganizations that will result in lowered operating costs.

The present situation presents another kind of challenge. In time of trouble, improvements, long desired, may be more easily brought about than when money comes easily and a strict accounting of expenses is not so necessary. When the school staff once firmly grasps the idea that economy is necessary, better cooperation in effecting reform can be won. Resistance is replaced by positive effort to help. In this day, then, the wise superintendent is studying his system with a microscope to discover every possible means of improving it. He has more sympathetic support from his co-workers than in normal times.

We are constantly confronted with the criticism that schools are extravagant; that the curriculum is full of fads and frills; that there is too much supervision; that there are too many specialists, and that we stand guilty of having built up a

gigantic organization, far more extensive and costly than the needs of a democratic society require. I submit that this criticism is unjust. The schools of this country have enriched their curricula only because, within thirty years, the state has made it compulsory for the school to assume the responsibility of making an asset out of every child. The state has become more and more socialistic, and has insisted that its interests shall take precedence over those of the parents. Therefore, we are in no position to neglect any child. We could not, if we would, and the modern school program is the logical result.

The Voice of the Radical Is Heard

But when a crisis comes the guns are leveled at the schools as the cause of the heavy tax burden. They are the target, while on the other hand the state, by its requirements, wise and sound, still demands that they carry on. The dilemma in which the schools find themselves is one that calls for an impossible correlation of the fundamental demands of a democratic society (and these must be served somehow) and the demands of a local community for relief, often without regard to the necessary functions of the school. I believe that the school program must be continued very much as it is now organized. No other conclusion seems compatible with the recognized and acknowledged needs of all the children of all the people.

When confronted with the need for heavy retrenchments and other steps equally menacing to the future welfare of the schools, what is the superintendent to do, when he knows that the schools must be kept going, and that the curriculum should not be greatly curtailed? I think the answer is clear. He cannot rely on the theoretical arguments of the pedagogue. He must buttress his arguments with sound factual information as to costs, and must so reorganize his system that the layman, the hard headed business man and the carping but uninformed critic will be convinced that what the schools are doing and the cost of their programs are reasonable. Unless he can do this, the work of the schools will be ruthlessly curtailed. In these days one thing may be counted on with certainty, and that is that the schools are going to be treated no better than the public is convinced they should be. Above everything else the superintendent should know by this time that it is the voice of the radical that is being heard, and the radical is the person who must be reached, not necessarily directly, but by a program of facts addressed to the thinking people of the community.

People still believe in public education. In every community there are sane groups and organizations which desire that the efficiency of the schools

shall not be materially reduced. They need the superintendent's help and he needs theirs. Their faith in public education is not being expressed. Their voices are inaudible. They are waiting for facts.

A reference to the problem of curtailing school costs in Montclair, N. J., may be pardoned on the ground that I believe our experience holds promise for other school systems confronted by exactly the same problem. Our schools have been sharply criticized for the past eighteen months. It is beside the point that they cost more than do schools in most localities. It must be remembered that we have about \$16,000 of assessed wealth back of each child in school. That does not mean a thing, however, if taxes are not being paid. The problem of reducing expenses is as difficult for us as though we had had only meager school support in the past. The citizens organized a taxpayers' association, and a new city commission was elected on this platform of reducing all governmental costs.

The city commission last July appointed a committee of five representative citizens to make a survey of all departments of government, including the school system. The committee was appointed in such a way and was given such instructions that its members felt free to investigate impartially every aspect of the school program. They were told that the truth was desired and that they should find ways and means of effecting economies.

Criticism Has Been Stopped

The membership of the committee included men of experience in financial affairs, and some who had been sharp critics of the schools, especially of the cost of overhead and of the fads and frills of the curriculum. As the investigation proceeded, it became apparent, when the members understood what the schools were doing and learned the facts as to costs, that they did not desire to cramp the schools unduly. Rather they became interested in helping to find means of carrying on the essentials of the educational program at a lesser cost. At the conclusion of the committee's work, a fourteen page report was issued to the public.

We invited the committee to sit in with us and help prepare the forthcoming budget. This invitation, together with the impartial report submitted to the public, has resulted in an almost complete stoppage of destructive criticism. Criticism has been replaced by a renewal of confidence in the work of the board of education and the way has been paved for constructive cooperation between citizens and the board. We have witnessed a renewal of public faith in education, because, and only because, laymen have convinced them-

selves that the schools are economically administered and that the program is sound. I am reasonably safe in saying that, barring unseen emergencies, we shall, as the result of the assistance we have been given by citizens, have no difficulty next January in gaining the adoption of a budget that will provide for the continuation of all the more important school services.

Three Important Conclusions

I want to list some of the major questions and points that were taken up by the committee, because our experience will be duplicated in many other communities during the coming months. The superintendent and the board must answer these questions satisfactorily or they must see activities and departments taken out of the curriculum. Mere generalities will not be considered as sufficient answers. Answers must be made in terms of what the denial of services will mean to the children and how much will be saved by limiting them.

Here are the questions:

How can you justify an overhead expense of about 4 per cent of your budget?

Do you have too much clerical help?

What savings could you effect in clerical help without cramping the schools?

How can you justify handwork for elementary school children?

How can you justify manual training? Sewing? Cooking? Art?

Why do you have a school dental clinic?

Why do you have psychologists? Visiting teachers? A psychiatrist?

Why do you have school doctors? Nurses?

What do the supervisors do that justifies the expense of their salaries in this emergency?

Why do you have a teacher to correct speech defects?

Why do you teach instrumental music?

How can you justify classes in piano instruction?

Why not materially increase the size of classes?

How can you save money on supplies and textbooks?

Why, oh, why, do you have a specialist in visual education?

Should salaries of employees be reduced?

It can readily be seen that the inquiry was directed at the so-called fads and frills, and this has been and will be the experience of others. Two or three important conclusions may be drawn from this experience. First, all the argument in any given community is not in favor of ruthlessly curtailing the work of the schools. Second, the board and the superintendent must be familiar with

every detail of the system and must have at their fingers' ends the cost of every service rendered. This point needs elaboration.

In these times, budgetary practice and cost accounting are of vital importance, and yet, the country over, school budget practice is lamentably poor, while cost accounting is not carried on in such a way as to touch the vital questions now being raised by the critics of the schools. A carefully planned budget is one of the best means available for allaying criticism. It should be so drawn up as to show in the minutest detail what every activity will cost. It should also reveal clearly what the school program is to be. It should, of course, be drawn up on the basis of cost studies covering all noncontractual, as well as contractual expenditures, and when it has been set up it should be accompanied by a system of budgetary controls and cost accounting that will not only place limitations on expenditures but will serve as a constant check on costs. No budget, however carefully drawn up, will work by itself.

The third point I wish to mention is salaries. Salaries in the long run will bear some relation to cost of living. They were advanced during the boom years because cost of living went up and money was flowing like honey in the land. We used the argument of living costs prior to 1929, and we cannot blame the public for using it now. What we need to have determined is what is a fair rate of pay for teachers; not whether salaries should be reduced or increased according to the times. It is notorious that those cities which have always supported their schools in niggardly fashion are now most insistent upon reductions, to the point of impoverishing the teachers.

Must Avoid False Economies

The question of salaries must be considered, not by itself but in relation to the school program. If a community does not have enough money to support the schools at their past level, then some reduction must be effected. Shall salaries remain untouched? If so, the children must have a reduced curriculum. Shall the curriculum be maintained? If so, the salaries must be slashed, and children put on part time or jammed into greatly overcrowded classrooms. The salary question becomes one of far-reaching importance when considered in this light. Here as in every other phase of school work, relative values must be considered. Hasty decisions are almost always the result either of a lack of leadership or of obstinate unwillingness to consider the whole problem, or of both.

I have made no mention of care of the school plant or of capital expenses. It is unfortunate that

we are faced with a determination to have operation and maintenance costs reduced to the point where many communities are actually using up their capital. That is bad business and this fact should be firmly pointed out to the board of education. Enrollments are increasing and due to a lack of foresight we shall find ourselves one of these days confronted by an acute shortage of schoolrooms, and without the money to meet the extraordinary expenditures which that shortage will make mandatory. We shall not have recovered from the depression sufficiently to warrant any extraordinary expenditures. That is the basic reason why, if we possibly can do so, we should stand with our loins girt about with truth, and do everything in our power to keep the schools going in every department, under a policy that is uncompromisingly opposed to the penny-wise and pound-foolish demands of those who do not understand the situation.

Let us resolve to get the facts and keep the public informed. Let us win the cooperation of the citizens by asking their help. We have been forced to make economies, but, barring many exceptions, the public schools have not suffered as much as has business generally. Their efficiency has not been permanently lowered. The morale of the teachers is high. They are a determined group of faithful optimists. We shall see much good in what has happened to us when the clouds shall have rolled away and evidence points to a clearing sky. We shall come through with a more efficient organization. We shall find that we have in reality discovered a better way to do our work at less expense, and that is an important something.

An Inexpensive System for Filing School Keys

An inexpensive system for the handling and filing of keys has been developed by the University of Kentucky, and is one that should be suitable for other schools that do not have modern key filing equipment.

The method is described in the *Educational Business Manager and Buyer* as follows:

The filing device is a simple white oak ledge type cabinet, containing forty shallow drawers, four drawers wide and ten drawers high. It was built in the university's cabinet shop. The first six horizontal rows of drawers measure outside 3 inches deep, $10\frac{3}{8}$ inches wide and 15 inches long. The seventh and eighth rows are 4 by $10\frac{3}{8}$ by 15 inches, while the ninth and tenth rows are 5 by $10\frac{3}{8}$ by 15 inches.

Each drawer contains a loose piece of one-quarter-inch composition board or three-ply veneer, cut with enough clearance so that it can be dropped into the drawer to cover the bottom. These slip bottoms contain fifty-six stiff, round head brass brads, nails or angle hooks, driven sufficiently deep to make them solid. They are spaced evenly so as to accommodate standard cylinder lock keys when laid flat.

The keys are dropped or hung over these brads in even rows. Each drawer is labeled according to the building account number and floors. This arrangement makes each key visible and instantly available. Two heavy paneled doors are hung in front of the cabinet and these doors are locked with a heavy cylinder lock.

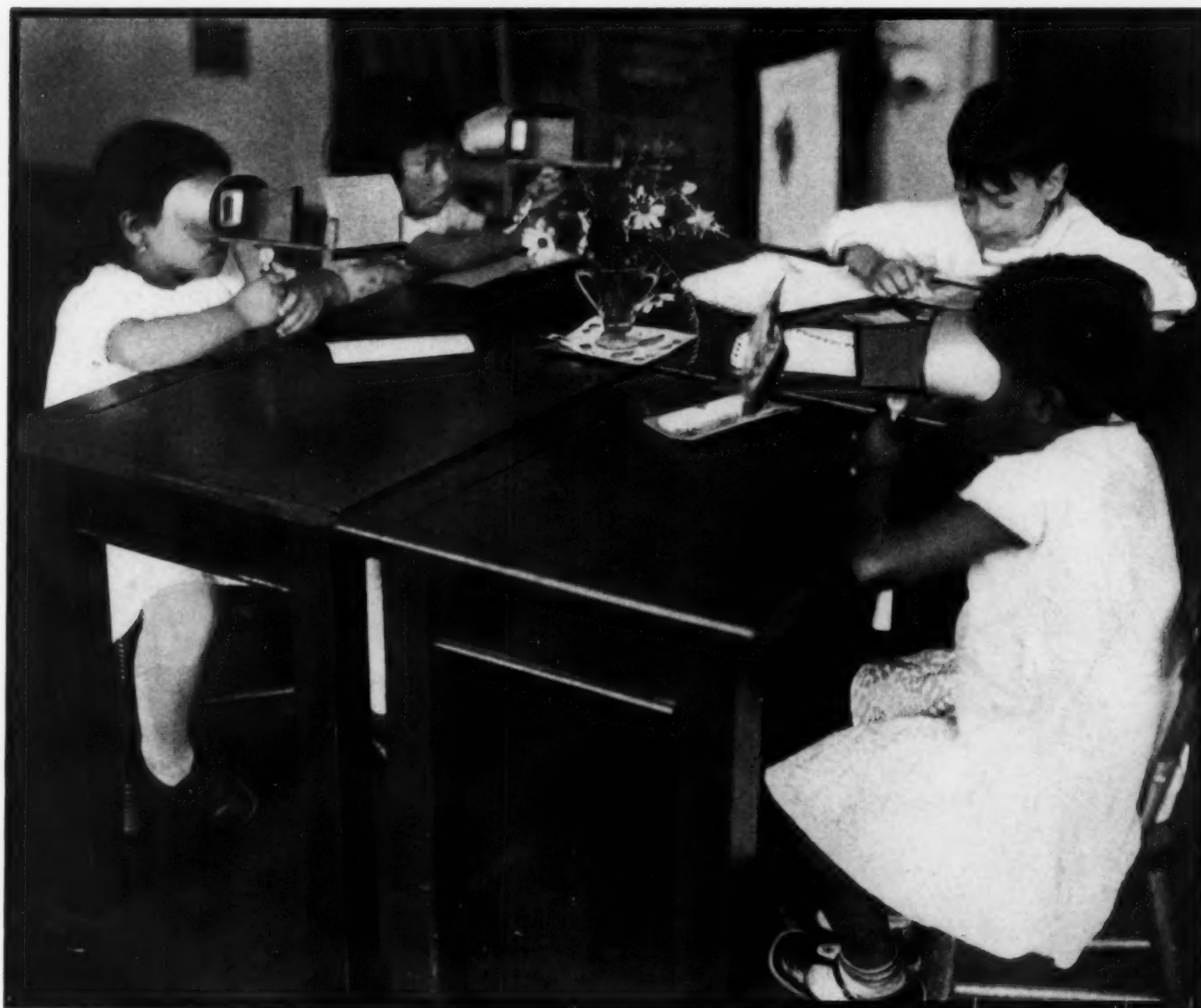
How the Keys Are Issued

A cabinet of this type holds a surprisingly large number of keys of all descriptions. Bit keys will take up more space than cabinet, drawer and standard cylinder lock keys. The first six horizontal rows are sufficiently deep to contain two layers of keys with fifty-six pins per layer and six keys per pin. The seventh and eighth rows will hold three layers or files and the ninth and tenth rows will hold five. This arrangement provides space for approximately 36,000 standard cylinder lock keys. The cabinet may of course be increased in size if necessary.

All the keys issued to faculty, staff and other employees bear the name of the university on one side. The reverse side is left blank for stamping the building, room and serial numbers. All keys are stamped, cut, filed and issued by the department of buildings and grounds.

Deans of colleges or heads of departments authorize issuance of the keys to faculty, staff and students. Proper deposit is made to the business office which in turn issues a special key deposit receipt card. This card is presented to the department of buildings and grounds where the keys are delivered. The deposit receipt card is filed along with a key record card showing the building, the name of the person to whom the key is issued, the date, the signed approval by the department head and the recipient's signature. The key thus becomes a receipt for the deposit.

When the key is returned to the department of buildings and grounds and filed, the original key receipt card is initialed and surrendered to the person who is then in a position to get his money back from the business office. The key card is then completely filled out and filed with information showing who returned the key, the date and who received it. If a key is lost the original deposit is forfeited and a new deposit is made.



The Why, How and Wherefore of Picture Education

By HARRY H. HAWORTH, Supervisor of Visual Education, Pasadena City Schools, Pasadena, Calif.

THE visual education department of the Pasadena City Schools, Pasadena, Calif., was officially organized during the early summer of 1927 as the result of recommendations of a committee of principals and teachers who had been studying the situation during the two preceding years. This same committee had made purchases of projection equipment and other visual aids to the amount of \$6,000 and this was turned over to the new department to be housed in the basement of the board of education building.

In November a half-time clerk was added and in February a projectionist joined the staff, thus completing the personnel for the first year.

During the summer of 1928 a full-time secretary was selected and in February, 1929, a second clerk was added to assist with shipping. This girl had exceptional talent as a colorist and colored many slides for the department.

It soon became evident that the rapidly growing library of visual aids could not long be housed in the small rooms of the basement of the board of education building without crowding out many of the other tenants. It was therefore decided to remodel the building which was to be vacated by the supply department upon the completion of the new warehouse. During the first semester of 1928-29 this building was prepared for the use of



Dr. Albert Einstein, the noted German scientist, spent considerable time in California when on a tour of the United States about two years ago. Doctor Einstein is shown here dedicating the new astronomy building at Pasadena Junior College, Pasadena, Calif., on February 26, 1931.

the visual education department and the city schools library (elementary) who moved during the latter part of February, 1929.

The new quarters included a photographic laboratory, film vaults, workrooms, offices and a circulation library room. A set of folding chairs made it possible to accommodate teachers' meetings.

A considerable reorganization of personnel was made for 1929-30. A certified teacher was added to the staff to help work out a cataloging system and to reorganize the library of visual aids. A photographic assistant was employed to handle the

The economic necessities of 1932-33 will, I fear, seriously curtail the visual instruction program in our schools.

An analysis of the duties of the four members of the staff for 1931-32 indicates that about 90 per cent of the time of the three assistants is devoted to activities dealing with service to teachers. This includes the booking of visual aids, putting up orders, inspecting, repairing and shelving the materials when they are returned, care of projection equipment and instruction of teachers and pupils in its operation. The remaining 10 per cent

The motion picture is a powerful instrument in visual education work. The films need to be inspected after each day's use in order to keep them in good running condition. Small breaks must be repaired before they cause serious damage.



laboratory work and to produce visual aids by photographic methods. The secretary resigned at the beginning of the year and her place was not filled until February, at which time the maximum personnel was reached. No changes were made for the ensuing year.

Thus the staff for 1930-31 consisted of the supervisor, a teacher assistant, a projectionist, a photographer, a secretary and a colorist.

The economy program in the spring of 1931 made it necessary to discontinue the services of the photographer and the colorist for 1931-32. This stopped our production program and, with other budget reductions, prevented any extensions of our visual instruction services.

of the time is devoted to general duties, including about 5 per cent spent on the organization and preparation of new materials for use in the classroom.

It is the aim of the department to encourage a critical selection of visual material. There is an uncountable store of small things that help to make daily living more harmonious and beautiful. One of these things we may term the mechanics of picture education. In the choice of picture material we endeavor to present to our teachers pictures of good composition and good color, that are also instructive subject matter. We know that a picture that is beautiful in composition and valuable from the standpoint of subject matter is more



Boys as well as girls are taught the art of cooking in the home crafts class at Washington Junior School, Pasadena, Calif., as this picture shows.

all pictures used in the classroom, we offer the services of our dry mounting press and instruct teachers in its use, provided they supply their own mounting paper. We want to encourage the attitude that a picture which is good in itself, well mounted and properly displayed has educational value; one that lacks any one of these essentials becomes thereby less valuable. We hope to teach children to respect things of beauty, not because they belong to the school, but because they feel beauty and want to preserve it wherever they find it.

We endeavor, through our contacts with teachers, to promote the proper use of visual aids. There are three general methods of using visual aids, namely, for motivation, for reference, and for review.

desirable than one that tells an accurate story but is commonplace in itself.

Our pictures are mounted so as to display the subject best within the limits set by standard sizes of mounts. We have arbitrarily designated five groups which include all sizes in our library. To distinguish these groups we use the following terms: (P) Prints, (SW) Small Wall Prints, (MW) Medium Wall Prints, (W) Wall Prints and (F) Friezes. The prints average 8 by 10 inches or smaller and are mounted on cards 10 by 12 or 11½ by 14 inches. The small wall prints average 11 by 14 inches and are mounted on cards 13 by 16½ inches. Medium wall prints are mounted on cards 16 by 20 inches. Wall prints average 16 by 20 inches or larger and are mounted on cards 22 by 28 or 23½ by 30 inches. A frieze is a horizontal picture approximately 15 by 39 inches. Because the pictures on these mounts vary in size, we maintain two sizes to allow for correct margins for any picture in the group. We use the smaller size whenever possible, but some pictures need more margin than others and in this way we retain standard sizes without sacrificing the pictures.

In order to maintain a uniform appearance of

For motivation of a problem the visual aids are used to introduce or arouse interest in the main subject, and again in the subtopics when they are reached. As reference material visual aids supply needed information, clarify and develop the ideas of the pupils, and direct the entire group to the salient features of the discussion. For purposes of review and the integrating of results, we find visual material invaluable in forming true concepts for the entire group to carry with them and use in their work.

Timely Use of Pictures Increases Their Effect

The use of visual aids during the teaching process gives all the children of a large class the opportunity to create for themselves the same basic imagery of a new subject. After the true basic imagery is created the value of descriptive speech is enhanced because it amplifies the child's own experience which he has received vicariously through the visual aids used.

One of the cardinal principles in our philosophy of education is that visual aids must reach the classroom at the opportune time in the development of the lesson or they will lose much of their

The children are allowed to study and talk about the pictures that appeal to them thus discovering for themselves many things worth knowing.

effectiveness. We have encouraged the teachers to plan their work well in advance and to place definite requests for the visual aids they will need each week. It is then our duty to see that the material reaches them on scheduled time. This permits the teachers to make their plans and to carry them through with all parts functioning smoothly.

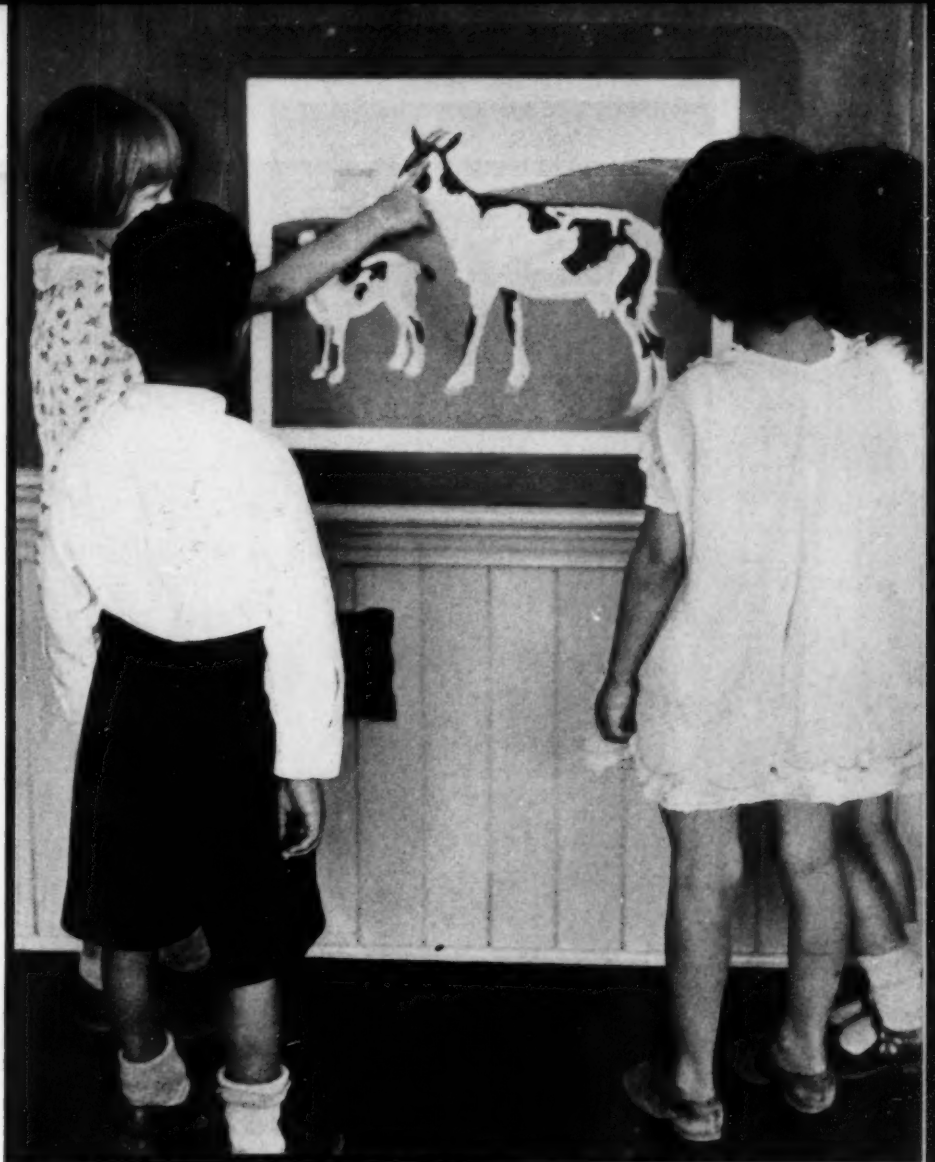
We are handicapped in this matter by a lack of sufficient material to meet the demands. Most units of instruction, we find, are covered in periods of from one to six weeks duration, so that the demands on our department are of a seasonal nature.

During the year 1931-32 we have kept a record of the teachers using the department, based on the names appearing on the loan cards.

This record, we realize, is not absolutely accurate because we know in many cases that other teachers than those whose names appear on the loan cards used the material while it was in their building. Another consideration to be taken into account is the fact that in the upper grades, especially the junior college and in certain departments such as music or commercial work, there is little material in our library which would be suitable for them; consequently they cannot make use of our department. The majority of visual aids in the library are better adapted to the elementary grades. The conclusion I draw from the study of this record is that approximately one-half of our teachers are, at the present time, making use of the facilities of the department.

By July, 1929, the library of visual aids had grown to the point where it became necessary to adopt some adequate system of cataloging and organizing it. The scheme outlined here is largely the result of the studies of Margaret Sloan White, our teacher assistant, and Leslie Adams, our projectionist, over a period of three years.

The classification of pictures for classroom use is a problem upon which there has been little ex-



perimentation on a large scale. The material must be so grouped or organized that it may be used to supplement specific units of work and yet arranged so that no section assumes undue importance.

Simple Form of Classification Is Best

The system of classification must be capable of almost unlimited expansion without being changed basically. It needs authoritative, detailed reference works which can be used as guides and it should have an adequate yet fairly simple system of symbols to indicate the divisions. In looking over some of the different systems of classification, we have finally adopted the Dewey Decimal Classification which is commonly used in libraries.

During the first two years while our library of pictures was relatively small, we used a simple alphabetical subject classification. As more material was added, the system became impracticable and an adaptation of the Dewey Decimal system made by Marion Israel, visual education division, Los Angeles County Schools, was tried for a year. This, we felt, was inadequate because we lacked the necessary references covering the special adaptations, therefore, we turned to the complete Dewey



Teachers calling at the visual education department are given supervisory assistance in the selection of visual aids.

Decimal Classification, using as our reference "Decimal Classification and Relative Index," by Melvil Dewey.

Dewey's system of classification divides all knowledge into nine main classes numbered from 1 to 9. Of these nine classes we have found it practical to use only six as follows: 3—sociology; 5—pure science; 6—useful arts; 7—fine arts; 8—literature; 9—history.

Each class is similarly separated into 9 divisions. Divisions are similarly divided into 9 sections. This process is repeated as often as necessary. Thus 952 means Class 9 (History), Division 5 (Asia), Section 2 (Japan).

Since there are several different types of visual aids and it is a physical impossibility to file lantern slides and wall prints together, we have arbitrarily adopted the following letters as abbreviations to be used as prefixes to the classification number:

E	Exhibit	R	Rollfilm
F	Frieze	S	Stereograph
L	Lantern Slide	SF	Stillfilm
MW	Medium Wall Print	SW	Small Wall Print
P	Print	W	Wall Print

In order to keep separate that part of our material which is suitable only for primary grades, the complete call number is prefixed by the letter X.

At this point we have found it advisable to add a dash and an accession number so that each set has a different number which can be used in place of the title for filing and shipping. Thus P 952-9 tells us that this is the ninth set of prints dealing with Japan. Duplicates of sets are indicated by adding below the number Copy 1, Copy 2. The number of pictures in the set is written in parenthesis usually below the copy number. The complete number and title as written on the envelope are as follows:

P 952-9 People and Occupations (Japan)
Copy 2
(10)

The material is filed numerically by the classification number and then alphabetically by title under the classification number.

A large wall picture of Japan showing an old feudal castle on a hill in the background, with a typical group of Japanese peasants in and about a jinrikisha in the foreground may be equally valuable for a history class studying feudalism in the Middle Ages, or for a home economics group studying costume or another class interested in transportation or architecture. A cross reference card catalogue is of great assistance.

(To be continued)

Educators Have Not Solved the Class Size Puzzle

Investigations conducted so far have failed to prove that class size is an important factor in determining educational efficiency in terms of pupil achievement

By MANLEY E. IRWIN, Assistant Director of Curriculum Research, Detroit Public Schools

THE present economic situation is causing school administrators to examine critically some of the accepted standards of their school systems. Research shows that some of these standards are able to withstand this analysis, but others are not. Some standards are so ingrained in our thinking and seem to be so logical that we fear any fact or indication that is contrary to our preconceived ideas.

One of the standards that school men have been reluctant to investigate carefully is that pertaining to class size. And yet, in spite of our preconceived idea of the effect of class size on instruction, the size of classes has been gradually increasing. No doubt this increase has been caused by the fact that any considerable saving of money in a school system can be accomplished only by cutting salaries, by cutting activities, by increasing the teacher's load, by increasing the number of pupils in a class or by a combination of two or more of these. Obviously, other things being equal, economic savings can be effected in school maintenance if the size of the classes is increased. But what is the effect of class size on the efficiency of instruction? If we increase the size of the class will the pupils suffer proportionately? What do the reports of investigations on this topic show?

Former Studies Analyzed

In order to answer these questions with any degree of satisfaction I have collected a comprehensive bibliography of studies and articles relating to class size and have analyzed the results of such investigations as have already been made. The bibliography was secured from several sources, namely, the U. S. Office of Education; the bureau of educational research, school of education, Ohio State University; bibliographies in other studies relating to class size; the *Education Index* and the *Readers Guide*. No attempt has been made to canvass other institutions of higher learn-

ing for the results of unpublished investigations. In all probability then, this summary does not include all of the studies on class size that have been made. However, an analysis of the bibliography collected shows that since 1900 there have been published no less than 205 books, bulletins, monographs and articles in periodicals dealing with class size. A distribution of the number of articles on this topic is presented in Table I.

Over 100 Experiments Made

Of the 205 references, twenty-four are books or parts of books, ninety are bulletins and monographs and eighty-one are articles in periodicals. It will also be seen from Table I that most of this literature has been published in recent years. In the five-year period from 1900 to 1904 only four articles appeared, while in 1925 to 1929, ninety-two articles were published. In the last seven years more material has been published on class size than in the preceding twenty-five years. In these 205 references there are reported 108 different investigations of an experimental nature. The 108 studies have consisted, in the main, of investigations concerning the effect of the size of class upon one or more of the following: (1) the promotion rate, (2) the percentage of withdrawals from class, (3) the percentage of class giving attention, (4) the amount of time wasted by pupils and (5) ability as measured by the scores made on standardized and improvised tests.

The first has been most commonly used, while the fifth has been used only in the more recent studies. In early studies little provision was made for holding constant factors such as teaching ability, status of the pupil, length of the class period, and the like, which might influence results. In the later studies the method approximated more nearly the ideal of the single variable, the size of class. In the most recent studies, besides an effort to hold these factors constant, an attempt has been made

to employ teaching techniques suitable to the size of class.

Since it will be impossible to review all of the 108 studies, I have selected only a few which are more or less typical of those that have been made. I shall refer somewhat in detail to only two or three of these studies.

The first study on class size for which we have any reference was made by Dr. J. M. Rice in an article in the *Forum* in 1896. In that year Doctor Rice gave two tests, one in arithmetic to 6,000 pupils and one in language to 8,300 pupils and compared the results of the pupils who were working in classes of various sizes. Although the size of class is not given and although he did not hold other factors constant, Doctor Rice's study is important because it was the first attempt to apply the scientific method to education and because he made use of the best technique available.

Some Conclusions of Early Studies

In regard to arithmetic, Doctor Rice said, "There is no difference in the test results due to the size of class, the results being just as liable to be favorable to large as they are to the small classes." The investigation showed that in language "There was no relation between the size of class and the results, and that some of the best work had been done in some of the largest classes and some of the poorest in the smallest classes." The general conclusion reached by Doctor Rice was that there were no significant relations between class size and pupil achievement.

Oliver P. Cornman, after examining the percentage of promotion of pupils of different ages, came to the conclusion that all factors considered, there is no significant relationship between class size and pupil achievement.¹ P. R. Stevenson, in a study made in Chicago came to this conclusion: "On the whole, the small classes did slightly, very slightly, better on the term work and examination than the large classes with which they were paired."² Mr. Stevenson in another investigation came to the following conclusion: "These slight advantages do not justify small classes of approximately one-half the size of the large ones."³ These studies exemplify the technique used in making studies up to 1925.

From 1926 to 1930 a large number of studies on class size were made at the University of Minnesota under the direction of Dr. Earl Hudelson, now dean of the school of education, University of West Virginia. One of the most significant studies

made under Doctor Hudelson's direction was that of Dora V. Smith.⁴ The experiment was conducted for two years, 1925 to 1926 and 1926 to 1927. The first year Miss Smith had one large class of fifty-one pupils and a small class of twenty pupils. The next year she had a large class of fifty-one pupils and a small class of twenty-one pupils. The achievements of the two classes were measured by means of twenty-four objective tests covering English form, English grammar, letter writing, composition, reading, knowledge of literature, extent and variety of reading activities, library work and character rating tests. The pupils were matched by intelligence, chronological age and initial ability in reading, English grammar, English composition and spelling. The same course of study was used for both classes and the two classes were taught by the same teacher.

Miss Smith used the same general method of instruction in both classes, except that she varied the method as occasion demanded because a part of the aim of the experiment was to devise methods of handling larger groups of pupils with as little waste of time and energy as possible and with a maximum of attention to the individual. In this study the pupils in the small classes were paired with the pupils in the large classes and the achievement was measured in terms of the matched pairs.

Nineteen tests were given for the year 1925-26. Eight of these tests showed that there was no significant difference in the results. Three tests showed that there was a significant difference in favor of the small class, and eight tests showed that there was a significant difference in favor of the large class. In 1926-27, twenty-four tests were given. Eleven of these tests showed that there was no difference, five tests showed that the difference was in favor of the small class, and eight tests showed a difference in favor of the large class.

An Eleven to One Chance

Miss Smith's conclusions are as follows: (1) The efficiency of instruction was independent of the size of the class in grammar, punctuation, capitalization, mechanics of reading and composition, exclusive of letter writing; (2) the small classes were definitely superior in letter writing and library methods; (3) large classes were decidedly advantageous for progress in spelling, increase of vocabulary, knowledge of literature and extent and variety of reading activities, including initiative in unsolicited contributions to classroom projects, amount of voluntary reading and general spirit and enthusiasm for the work.

A number of studies made on the college level

¹Cornman, Oliver P., *Size of Classes and School Progress*, Psychological Clinic, Dec. 15, 1909.

²Stevenson, P. R., *Relation of Size of Class to School Efficiency*, Educational Research Bulletin No. 10, University of Illinois Bulletin No. 46, vol. 19, July 3, 1922.

³Stevenson, P. R., *More Evidence Concerning Large and Small Classes*, Educational Research Bulletin, May 27, 1925, Bureau of Educational Research, Ohio State University College of Education.

⁴Smith, Dora V., *Class Size in High School English*, University of Minnesota Press, 1931.

TABLE I—NUMBER OF BOOKS, BULLETINS, MONOGRAPHS AND PERIODICALS DEALING WITH CLASS SIZE, PUBLISHED BETWEEN 1900 AND 1932

Year	Books	Bulletins and Monographs	Periodicals	Total
1930-32	1	7	27	35
1925-29	10	52	30	92
1920-24	2	22	12	36
1915-19	5	3	6	14
1910-14	4	5	2	11
1905-09	1	1	1	3
1900-04	1	..	3	4
Grand Total	24	90	81	205

in the University of Minnesota deserve attention. The care with which the studies were made and the technique used in reporting them make these studies especially important to school administrators, rather than the fact that they were made in college classes. In all, more than fifty different studies were conducted at the University of Minnesota. These were made both in the college of education, and in other colleges of the university. Since all of Doctor Hudelson's studies are reported in the same manner, I should like to call attention to a few points in an experiment which he calls No. 48.

One class had 150 students, while another class had only twelve. In terms of the measurements used there is a difference of the means in the final criterion of 6.22. This difference is in favor of a large class. The experimental coefficient is in favor of a large class. The experimental coefficient is .5587 which means that if this experiment were repeated again, the approximate chances are eleven to one that it would come out in favor of a large class.

A Summary of the Investigations

The 108 studies were then classified according to their instructional division. It was found that seventy-two individual studies could be classified by this method. Of the seventy-two studies, twenty-three were made in exact science, two in fine arts, forty in language arts and seven in social science. It will appear that there is a discrepancy between the number and results of those listed in the school division and those listed in the instructional division. This is because of the fact that in many of the studies, the authors reported that there was no significant relationship between class size and pupil achievement. However, on closer examination, it will be found that a large class would make a score of seventy-two in arithmetic, while a small class would make a score of seventy-two and one-half. Whenever there was any difference, no matter how small, I have classified it under the size of class that excelled.

Fifty-four of the studies took into account the element of the brightness of the pupils. Although in many others, the pupils were matched according to intelligence tests, no report was made as to whether the bright pupils did better than the dull pupils. In these fifty-four studies large classes excelled in twenty-nine cases, small classes in twenty-two cases and neither excelled in three cases.

Suggestions for Further Experimentation

In the section on the college division, fifty-seven studies are reported, forty-four in which the students excelled in large classes, and thirteen in small classes.

It appears that class size is such an important factor in school costs that it might be well for school administrators to initiate further studies to determine what effect class size has upon instruction under local conditions. Those interested in making such a study are referred to a suggested set-up that has been outlined by a committee of the Department of Secondary School Principals, which is published in the tenth annual proceedings of that department.

First, the committee makes a definite statement of the problem as follows: "Other things being equal, what is the effect of class size on the efficiency of instruction?"

Three Types of Experiments Proposed

Then it proposes three types of experiments. The first is that in which classes of different size varying within the normal range, fifteen to forty-five pupils, are taught under identical conditions in all groups. In this type of experiment the teacher will use the same technique in a large class that she uses in a small class.

The second type of experiment is that in which classes of different size, varying from fifteen to 100 pupils, are taught under optimum conditions for each group. This type of experiment necessitates developing techniques which may differ in small and in large classes.

The third type of experiment is that in which large classes of between seventy-five and 200 pupils that are taught some of the time as a whole, and some of the time as small sections of about twenty-five pupils, are compared with classes of similar size that are taught all the time in small sections only.

The Statistical Procedure

The next part of the set-up presents the conditions to be controlled. They include the ability of the teacher, the material of the course, the method of teaching, the physical conditions and equipment, the length of the class period, the time of day and the status of the pupil (by which is meant his grade, sex, intelligence, initial achievement and study). These terms are self-explanatory, with the possible exception of achievement and study. By achievement is meant the knowledge and the skill of the pupil in a particular field as revealed by objective measurement. By study is meant the amount of pupil preparation, whether it is classroom study, supervised study or home work. All of these factors need to be equalized in the classes to be studied in order to make sure that the differences in the results are due to the difference in the size of class.

A suggested statistical procedure is outlined under the treatment of data. The achievement of the pupils in the course is to be measured by the same objective tests at the beginning and at the end of the course. It is further suggested that the scores be expressed in standard deviation units to make comparison possible and to determine the reliability of the difference in growth due to the experimental factor. The following items will be measured: the achievement in the course, the practical application of knowledge, the effect upon the realization of the aims of education, the effect upon the work for which the class is a prerequisite and the effect upon various kinds of learning. It is the intention of the committee to make investigations in the emotional effects on both the teacher and the pupil, the attitude of the teacher and the pupil and the effect on study habit. It will be seen from this outline that the important factors that will enter into any large experiment have been carefully considered.

General Conclusions

It is evident that there are many disagreements among the results of the investigations which have been made on this subject. Apparently the nearest approach to the truth in a single statement is to say that the results of these investigations indicate that the size of class has little, if anything, to do with educational efficiency measured in terms of

pupil achievement. The earlier studies, which used pupil progress and other available records as the bases of comparison, show little or no difference due to class size, although large classes tend to have somewhat lower rates of promotion. The studies in the period from 1915 to 1925, which used achievement in the tool subjects, as measured by tests, and in which other factors influencing the results were controlled to a greater or less degree, also have contradictory results. Classes considered as large in these earlier experiments on the class size problem did about as well, on the average, as those considered small.

Findings Are Conflicting

In general, many of the studies made since 1925 have been much more carefully controlled and measured than those made prior to that date. The importance of comprehensive records and adequate control of factors continue to be recognized. In addition, investigators are attempting to find the optimum technique for teaching large classes. They are concerned also with finding better ways of interpreting differences found between classes of different size, as well as with measuring the emotional effects upon both the teacher and the pupil and of discovering the attitudes of the pupils to the problems of class size.

It should be remembered in interpreting the results of the studies that classes considered large in one investigation may be considered medium or even small in another study. However, even when classes of comparable size only are included in each group, the findings are still conflicting and indecisive. It will be noted that many schools now have in general practice classes of forty-five or fifty pupils, which in these reports are often called large, without any appreciable effect upon their pupil achievement.

No Bad Effects From Experiments

It should also be noted that the studies that have been made take no account of many other elements in the situation, such as the effect upon the health of the teacher and the pupils or the effect upon the instructional products other than knowledges and skills in the tool subjects.

However, enough has been done to show that no bad effects have resulted from experimenting with large classes. In setting up an experiment to measure the effects of unusually large classes care should be taken to see that the size of the room is adequate, that equipment is provided to care for the large number, and that the teachers have in mind a technique that is flexible enough to meet the new conditions that are certain to arise in an experiment of this kind.

Do Open-Air Schools Justify Their Extra Cost?

A study of open-air schools in 213 cities revealed a trend toward making the essentials of the open-air program available to all school children

By MARY WALDO TAYLOR, Elizabeth McCormick Memorial Fund, Chicago

HAVE open-air schools realized the promises held out for them during almost quarter of a century of experimentation? Do they justify their cost? What changes have been made or are being made in the programs of these schools? What features of the program are most valuable?

These are some of the questions to which we have tried to find the answer in a study made during the past year of open-air schools in 213 cities.

Sixty of the school systems studied feel that the

open-air classes they already have are adequate for their needs. An equal number feel they have not made adequate provision for children in need of the modified program of open-air classes. Only forty-three cities, however, indicate a tendency to increase the number of open-air classes and many of these are cities where the number of these classes is already adequate and so they are not contemplating immediate expansion. New buildings and plans to increase the number of fresh air rooms are under way at present in only three of these



Dressed in Eskimo blankets, these pupils at the Fresh Air School, Portland, Ore., are hard at work at their studies.

forty-three cities, although in many places there has been a steady growth during the past few years due to an increase in the number of rooms each year or two.

Thirty-nine public school systems which had formerly reported open-air classes to the national file of the Elizabeth McCormick Memorial Fund, Chicago, are not maintaining such classes now. The need for economy was the reason for closing in eight cases, and it is hoped that the classes may be reopened when times improve. Two classes were closed because of lack of space. In one city the building burned and while it has not been possible to provide satisfactory quarters for a health room, the school has continued the teacher as a house to house visiting teacher, helping the crippled and sick who are detained at home. Only one city closed its open-air class because it felt that results did not justify its existence.

While there are still many open-air schools in existence, particularly in the larger cities, such as New York City, Detroit and Philadelphia, the tendency is toward decentralization and the development of open window rooms instead. The expensive specially constructed open-air schools are used largely for children in need of medical care. San Francisco, for example, plans, as soon as an adequate budget is available, to have one large central school for children who represent real medical problems, requiring intensive work and study, with

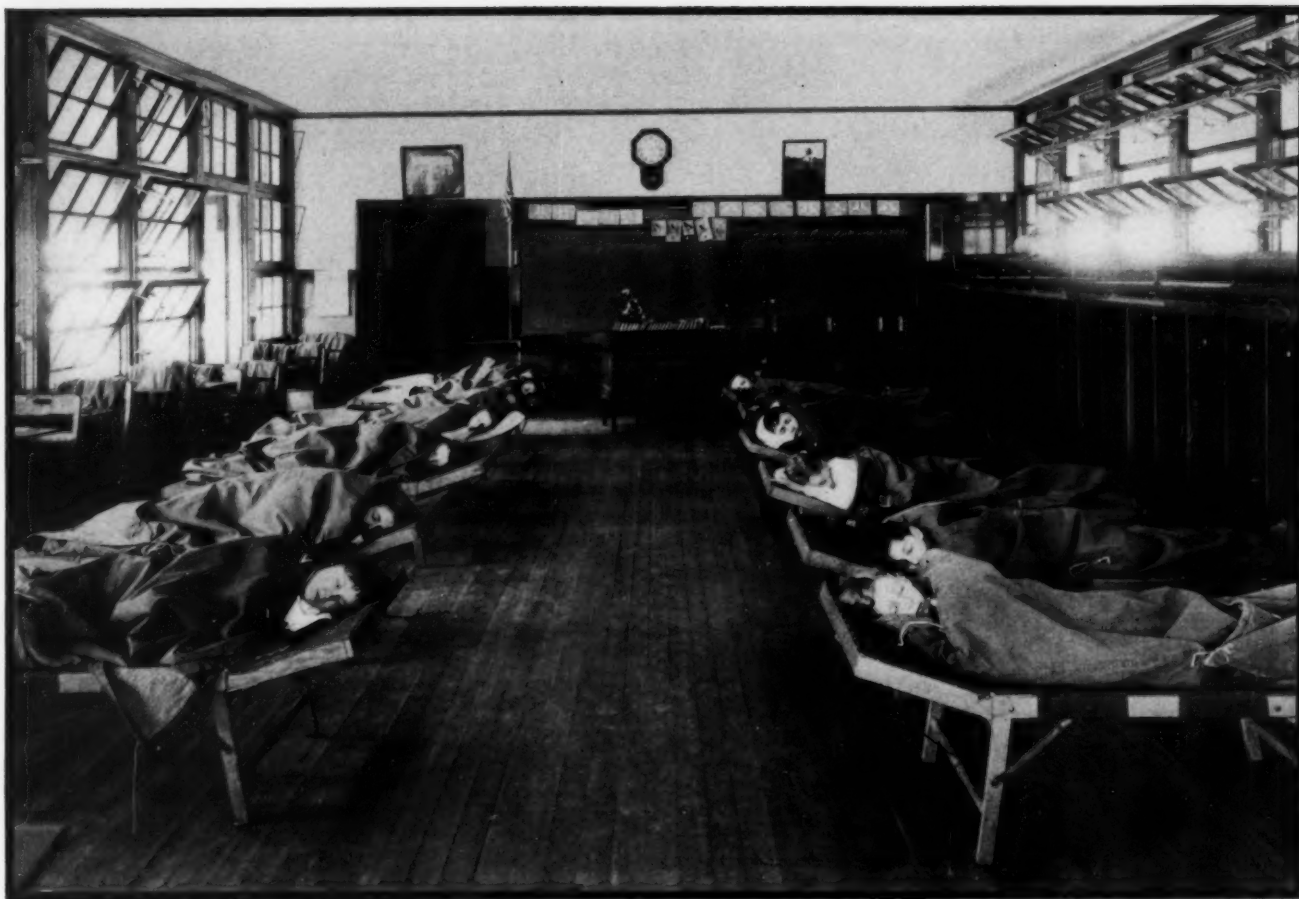
numerous neighborhood classes in schools throughout the city for less serious cases. Among the prominent specially constructed open-air buildings are the Mills School, Portland, Ore., the Theodore Potter School, Indianapolis, and the Lymanhurst School, Minneapolis. It is difficult to determine in a time of economic depression whether the slight decline in the number of such schools indicates a trend.

When open-air schools were first introduced, it was considered necessary to keep them at outside temperatures. Of the schools included in this study, thirteen do not provide heat. Three of these thirteen schools are in sanatoriums and three others are in Southern states. Forty-eight of the schools reporting maintain a temperature as low as sixty degrees, and forty-one schools permit the temperature to go below sixty degrees. Except in mild climates there has been a steady, rapid and almost universal trend away from unheated rooms and the temperature maintained is gradually approaching that of the rest of the school system. Rest rooms are kept cooler than classrooms. On the other hand there is no trend away from fresh air. Emphasis is placed upon circulating fresh air, even though it is heated.

The practice of feeding pupils in open-air schools is becoming less common. Previously it was quite customary to serve both breakfast and luncheon, as well as a light lunch in the middle of the morn-



Pupils attending the Theodore Potter Fresh Air School, Indianapolis, get all the fresh air they need, if the number of windows in the building is any indication.



An after dinner nap is customary in open-air schools. In some schools the pupils are also given one or two rest periods in the morning. The above picture is of an open-air class in Portland, Ore.

ing and in the middle of the afternoon. Nowadays, however, breakfast is seldom served. In this study only four cities definitely report the serving of breakfast and one of them serves breakfast only in cold weather. In this particular city the children are transported long distances to school. Another city serves breakfast in seven of its fourteen open-air classes. Midday lunch is served in 110 cities, midmorning lunch in ninety-eight cities, and midafternoon lunch in sixty-one cities. Cod liver oil is served with the midmorning lunch in many cities.

Parents pay for the food, if possible, in fifty-three of the cities; the school board pays, in whole or in part, in seventy cities, and outside agencies, such as antituberculosis societies, business men's service clubs and parent-teacher associations, aid in providing food in forty-one cities.

The item of rest has always been considered important, and schools are constantly experimenting with the number and length of rest periods. One or two schools have reduced the amount of time spent at rest but a large number, on the other hand, have increased it, and it seems there is a decided trend toward introducing one, and sometimes two, short rest periods in the morning in addition to

the customary longer period following the midday luncheon. The length of this period is usually one hour, although it is slightly longer in some places. The generally accepted equipment for rest is folding cots. A few schools use reclining or steamer chairs and a few use floor beds or mats. From the beginning there has been considerable controversy as to which is the more beneficial item in the open-air school program, rest or food. Several of the cities studied consider rest the more important item. Blankets are provided in most cases, and in a few schools pillows are included as a part of the rest equipment. Cots are usually provided by the school board, although outside agencies sometimes supply them.

The earlier schools selected their pupils from tuberculous suspects, those exposed to tuberculosis in the home, the malnourished and the anemic. The range is now much greater. It has been extended to include those suffering from cardiac trouble, chorea, asthma, chronic colds, bronchitis, enlarged glands, nervousness and even those who are convalescing from illness. In the words of one educator, "The schools have gradually taken over the task of providing conditions that lend themselves to the promotion of the health of those who for one

reason or another fall into the class of unhealthy children."

In most cases the pupils for the open-air classes are selected by physicians, either school medical inspectors or private physicians. In exceptional cases the children are selected by nurses and admitted without medical examination. Periodic weighing is a general practice and there is hardly a city that does not have its open-air school children undergo a thorough medical examination at least once a year and generally more frequently.

a modified school program. The Sunshine School was established in Berkeley in 1925 to care for children in this group. Three years after the Sunshine School was established the number of children on the preventorium waiting list had been reduced from sixty to about ten.

The White House Conference committee on special classes gives the following figures on handicapped children in the United States: tuberculous children, 382,000; tuberculous suspects, 850,000; children with weak or damaged hearts, 1,000,000;



A class in the Theodore Potter Fresh Air School, Indianapolis. Note the manner in which the special windows divert the air upward and over the heads of the pupils. As for the teacher, she seems to relish the cold air.

According to the data submitted in this study, methods of healthful living are taught in practically all fresh air classes.

How many children in the United States need to be in fresh air classes? St. Louis reports a study that shows that 2 per cent of its school population would benefit from attendance at a fresh air class. A survey on special types of education, conducted recently in Trenton, N. J., recommends at least one open window class for each school. Berkeley, Calif., with a school population of 15,000, has discovered that from 125 to 200 of its elementary school children need special health supervision and

children with organic heart disease, 375,000; malnourished children of school age, 6,000,000.

The committee's report states that in the cities of 10,000 or more population, less than 40,000 children are in open window and open-air schools and classes, and that in the smaller cities and in the rural communities little provision has been made to care for handicapped children.

According to the national records of open-air schools maintained in the offices of the Elizabeth McCormick Memorial Fund, 245 cities in thirty-eight states had a total of 1,006 open-air schools and open window rooms, with a capacity of 32,024

pupils, in 1929. A recent bulletin, "Special Schools and Classes in Cities of 10,000 Population and More in the United States," issued by the U. S. Office of Education, reports 31,186 pupils in open-air schools or open window classes.

The movement for open-air schools would doubtless spread more rapidly were it not for the factor of expense, which retards the expansion of these classes. The cost varies in different cities but it usually runs at least twice as high as the average cost for regular classrooms. In spite of this, almost all of the 213 cities under discussion are convinced that the results justify the additional cost. Eleven cities hold to the view that the same results might be reached by more economical methods.

Is Equally Beneficial to All Children

Several cities feel they could obtain better and more far-reaching results by a substitute program. Both Boston and Plymouth, Mass., for instance, have discontinued open-air classes and have substituted rest and nutrition classes instead. In Los Angeles, where there are thirteen open-air sun rooms, there is no tendency to multiply these rooms, but instead the city has nutrition classes in fifty-five elementary schools and two nutrition classes in each junior and senior high school. Denver has only one open window room and does not plan to increase the number. This city is experimenting with one nurse in each of four schools. "This program," according to Denver school authorities, "will be for the whole school, plus special nutrition work for those children who need it most." Denver hopes to prove that the proper kind of preventive work will eliminate the necessity for a large number of open-air rooms. Schenectady, N. Y., Escanaba, Mich., Louisville, Ky., and Terre Haute, Ind., are among the cities that are substituting rest periods for the full open-air school program. Hackensack, N. J., has added a nurse and a medical inspector to its school force and it is felt that the health program is being handled more effectively in this way. Worcester, Mass., hopes to make every building a health unit through the department of school hygiene and its nurses. Gary, Ind., is installing supervised rest rooms as rapidly as possible.

There is a decided tendency to stress better ventilation and to extend the health program throughout the school system. The medical director in Evansville, Ind., after carefully analyzing the advantages that accrue to pupils in open window rooms has concluded that the open window room program is equally beneficial to all children. Consequently, except during rest periods, the open window program is now being provided in the regular classrooms as well as in the special rooms.

"This leaves as the main advantage accruing to pupils in the open window room the opportunity of having an after-dinner nap for one hour each day," according to the Evansville medical director. "This is undoubtedly of value to many children, but it brings up the question of the desirability of maintaining open window rooms to give twenty children this benefit. It is my opinion that we could abandon our open window rooms and substitute for them supervised rest rooms at each school with a saving of money and with the opportunity of affording rest periods to many more children than are now accommodated in our special rooms."

It was recently announced that Chicago proposes to extend the use of the special sleeping rooms provided for the open window rooms to a large number of pupils in the regular classrooms for a rest period of one hour each day.

There is a trend toward making the essentials of the open-air school program available to the entire system so that all children may benefit from better ventilation, sufficient rest, health instruction and adequate food. In a general review of "Education in Open-Air Schools," Dr. Adolph Ferriere, assistant director of the International Bureau of Education, Geneva, Switzerland, says that many educators are asking, "Why reserve the effects of the open-air exclusively for delicate children?" "If the effect of heliotherapy has been growth and development, both mental and physical, as is claimed for it, then it would be absurd to limit these advantages to delicate children," according to Doctor Ferriere.

Needs of Communities Differ

Any definite statements, however, concerning the wisdom of abandoning the open-air school or of substituting other measures must be based on facts gathered in the particular community affected. Such facts can be learned only by carefully planned and carefully conducted studies on the value of open-air schools.

It seems logical that as preventive programs become more thoroughly understood and as their operation becomes more extensive in the schools, the curative features of open-air school programs will necessarily diminish. The preventive program is aimed not alone at serious physical conditions but rather at the best possible development of each child. This ideal has not been reached. There are still many communities where the condition of the pupils is such that the curative measures should continue to have their place in the school program. In other communities the special program of the open-air school is needed to demonstrate the results that are possible through health measures in order to pave the way for the larger program.

An Easy Way to Control Finances Within the School

When school funds are centralized in a single account according to the system described here, it is possible to tell at a glance the financial standing of each extracurricular activity

By WILLIAM T. MILLER, Master, Washington Irving School, Roslindale, Mass.

HANDLING and safeguarding finances within the school is a matter that has received much attention and various methods of procedure have been devised. Some of these systems seem to be rather complicated and cumbersome, involving too much bookkeeping. The procedure described here is simple and has proved to be safe, accurate and businesslike.

The need for a school finance system arises chiefly from the growth of extracurricular activities within the schools. Most clubs handle some money in the form of dues. There are also entertainments, parties and games, which involve considerable receipts and expenditures. Besides these activities, there are such school funds as locker key deposits, lost book payments, school decoration funds and scholarship endowments.

As a general principle all financial transactions within a school should be supervised by a teacher or a school executive. For that reason school monies are often scattered among a large number of faculty members, who may hold such funds either on the basis of personal integrity or under some form of trusteeship.

It Is Imperative to Centralize Funds

This condition of scattered responsibility for school finances gives a leeway for many undesirable possibilities. The most obvious difficulty occurs in the event of the death of a teacher who holds school funds personally, with no trustee arrangement. It is embarrassing for anyone to claim such funds from the estate of a deceased teacher, as must sometimes be done. Teachers holding school funds may leave the system and fail to turn over the money they hold, usually through a lapse of memory. There is even the possibility of dishonesty among teachers holding schools funds, although such cases are rare.

It is clear that the only way to avoid this scattered holding of school funds is to centralize these

funds in a single account. In small schools principals sometimes try to do this by having all receipts deposited in a single account, of which the principal or some teacher acts as trustee. This personal trusteeship is open to the same serious difficulties mentioned above in connection with the holding of funds by individual teachers. To overcome all these objections the following plan has been devised at Washington Irving School, Roslindale, Mass.

How the System Operates

A committee of five, consisting of the principal, the submaster, the master's assistant, a teacher and the office secretary, was formed. This committee organized what we call the Washington Irving School central finance system. It was agreed that the trustees of this system should be the principal and the secretary. A simple statement of organization was drawn up and signed, as follows:

"We, the undersigned, hereby organize the Washington Irving School central finance system as a trust fund. In this fund are to be deposited all monies received on account of school activities, and all expenditures from said monies are to be made by checks drawn against said fund. This committee shall always include the principal, the submaster, the master's assistant, and the secretary of the school, with one teacher to be selected by these four members. The principal and the secretary shall always be joint trustees of the Washington Irving School central finance system and all checks are to be signed by these trustees jointly. Teachers in charge of school activities shall hold subsidiary account cards showing all deposits, withdrawals and balances in connection with their particular activities. All payments on any account are to be made by checks drawn against the Washington Irving School central finance system, and countersigned by the two trustees. On the first of

each month this committee shall audit the accounts of the system."

It will be noticed that the trustees are at all times to be the principal and the secretary. In the event of any change in the incumbency of either of these positions, the newly installed person automatically becomes a trustee. This effectually disposes of the chief difficulty in connection with personal trusteeship for funds. The death or removal of either of these school officials causes no tie-up of school funds, as the position of principal or secretary carries with it the duty of trustee, regardless of the person who may happen to occupy the post.

The practical working of this system may best be described by showing the various forms used in its operation, and by giving a few typical transactions. Each activity has a subsidiary account, the record of which is carried on a card (Form 1).

The accounts are numbered serially, and the card carries the name of the activity and of the teacher in charge. One copy of Form 1 is kept in an office file, and one is retained by the teacher responsible for the account.

When an account is opened or a deposit is made, the teacher or pupil officer comes to the office and Form 2 is executed. This form is printed in pad form, and is in effect a deposit slip. All the forms shown here are printed in our school print shop. Form 2 is made out in duplicate; the original is kept in the office, while the carbon copy is given

danger from keeping sums of money in the school safe. Seldom is any money left overnight in the school building. All funds, from whatever source, are of course deposited in the name of the Washington Irving School central finance system account.

When a payment is to be made for any purpose,

WASHINGTON IRVING SCHOOL
CENTRAL FINANCE SYSTEM

Form 2

Nov. 25, 1931
Received from John W. Gorman
For Account # 4
Amount 49 90/100 Dollars
Signed A. L. Madden

KEEP THIS RECEIPT ON FILE

Form 2 is executed when an account is opened or a deposit is made. It is in effect a deposit slip.

the teacher in charge, or a pupil representative, executes Form 3.

On the two lines "Expenditure for" is written the name to which the check is to be made payable, and a notation of its purpose. Form 3 is signed by the teacher or a pupil representative, to whom the check is given for delivery. No cash payments are made. If cash is necessary, a check payable to "Cash" is issued. As a general rule, a bill or voucher of some kind must be shown as a basis for each withdrawal, although this is not always either possible or necessary.

When checks are issued, the withdrawal is charged on the two copies of Form 1, just as in a bank book, and the new balance credited. Of course the teacher's copy of Form 1 must always be presented for either deposits or withdrawals. The signed copy of Form 3 is kept in the office as a voucher for the withdrawal. The check book stub carries the number of the account to which the payment is charged, as well as the usual particulars of the check.

One other card is used, a daily balance card (Form 4). On this card all deposits and withdrawals are entered, so that a constant accurate balance is kept. Provided all money received has been deposited in the finance system account at the bank, the daily balance on Form 4 will always agree with the check book balance, and with the balance on the bank statement. There are only two contingencies that can disturb these balances. The first is the so-called service charge made by some banks against checking accounts when they fall below a daily balance of \$300. This will of course reduce the bank balance by \$1, each month that it is in effect. To make the finance system balance agree with the bank balance, it is only necessary

No. 4 WASHINGTON IRVING SCHOOL
CENTRAL FINANCE SYSTEM Form 1

Activity Athletic Association - John W. Gorman

DATE	DEP.	WITH D.	BAL.	DATE	DEP.	WITH D.	BAL.
11/20/31	49.90		49.90				
11/30/31	4.00		53.90				
12/2/31	7.70		46.20				
12/2/31		12.62	33.58				

Form 1. Each activity has a subsidiary account, the record of which is carried on this card.

to the depositor, and serves as a confirmation of the account card (Form 1). Form 2 is signed by the secretary, who acts as the finance system clerk and accountant.

All money deposited is sent daily to the local bank, where a commercial account has been opened, under the name of the Washington Irving School central finance system, with the trustees named above. This account gives us checking facilities for the payment of bills. It also obviates all

to charge the \$1 deduction as a withdrawal from some school activity which is best able to bear the expense. The general school fund usually carries this charge. Except in very small schools, the daily balance seldom falls below \$300. Then, many

WASHINGTON IRVING SCHOOL

Form 3

CENTRAL FINANCE SYSTEM

Dec. 2, 193*1*
 Received from Central Finance System \$ *22.62*
 To be charged to Account No. *4*
 Expenditure for *Camwall Badge Co.*
Atla. Assoc. Pins
 Signed *John H. Gorman*

Form 3 is executed by the person in charge when a payment is made for any purpose.

banks make an exception in the case of school funds and eliminate the service charge entirely.

The second balance disturbing contingency is more favorable. It is the matter of interest accruing to accounts of over \$300. This may be added to the general school fund, which will of course equalize all balances. Of course the usual method of comparing the check book balance with the monthly bank statement should be followed at all times.

On the forms reproduced in this article, we have shown some transactions that may help to make the procedure clear. Form 1 is the account card for Account No. 4, athletic association, Mr. Gorman in charge. Form 2 shows the first deposit in this newly formed activity, resulting from the sale of school pins and buttons. A copy of this Form 2 is held by Mr. Gorman, the sponsor for the athletic association. Form 3 shows the voucher for the payment of the bill for the athletic association pins. The check to cover this voucher was sent by Mr. Gorman to the badge company. The receipted bill for this transaction, when it comes from the company, is held in the files of the athletic association. Form 4 is self-explanatory.

It may seem that this system involves too much bookkeeping to inflict upon an already busy school secretary. However, it should be remembered that many school accounts are inactive, except at the beginning and the end of the school year. Such, for example, are our locker key deposits. Each child must deposit twenty-five cents for a locker key, and this money is refunded when the key is returned. In our school each home room teacher is responsible for this locker key money, which amounts to over \$300 in total. The only time there is any

activity in these accounts is when a new pupil enters the school and gets a key, or when a pupil leaves and returns a key. Then in June the entire locker key fund is withdrawn. The amount remaining with teachers on account of lost keys is redeposited in a general fund, from which new keys are purchased.

The athletic association, the general school fund, and the school paper are only occasionally active. Several of our accounts are of unique interest. One is the Jeremiah E. Burke memorial fund for the relief of the unemployed. Another interesting account is that of the Washington Irving Teachers' Association. Our teachers have formed this association within the school, with a president and a treasurer elected by themselves. Each teacher pays monthly dues to the treasurer. The fund thus created provides flowers and delicacies for teachers who are ill, gifts for teachers who leave the school for any reason and is also drawn upon in emergencies. The treasurer of the teachers' association has her account in the central finance system, from which all disbursements are made.

At the present time our central finance system has forty-six accounts, thirty-six of which are the

WASHINGTON IRVING SCHOOL

Form 4

CENTRAL FINANCE SYSTEM

DAILY BALANCES

DATE	NO.	DEP.	WITH D.	BAL.
<i>12/1/31</i>				<i>590.32</i>
<i>12/2/31</i>	<i>4</i>	<i>7.70</i>		<i>598.02</i>
<i>12/2/31</i>	<i>43</i>	<i>15.37</i>		<i>613.39</i>
<i>12/2/31</i>	<i>3</i>	<i>3.00</i>		<i>616.39</i>
<i>12/2/31</i>	<i>4</i>		<i>22.62</i>	<i>593.77</i>

Form 4 is a daily balance card where all deposits and withdrawals are entered.

individual home room accounts for locker key deposits. We feel that we have safeguarded and systematized our financial transactions. We also are able to tell at a glance the financial position of every one of our activities, and to report intelligently and completely the financial conditions within the school.

Analyzing Instructional Costs in Ten Small High Schools

That teachers' salaries should not necessarily be the first target in the search for effective school economy is brought out in this study of rural schools

By LOREN V. KARNS, Markle, Ind.

THE economic condition in the United States has brought about an incessant demand on the part of taxpayers for reductions in school operating costs. Committees have been created to investigate the present high cost of school operation. State legislatures have passed laws making it impossible to increase appropriations. Is it possible that in many cases we are being penny-wise and pound-foolish? The result of the teaching process eludes immediate measurement nor can the results be measured in dollars and cents. Nevertheless much of the publicity the school is receiving at the present time has been of an uncomplimentary nature.

That portion of the budget devoted to instruction has been receiving the greatest amount of public attention. Salaries are being drastically cut. Is this the proper place in which to begin in the matter of school economy? Instructional costs vary from year to year. Other items seem to be more or less stabilized. It seems that instructional costs is the logical place to begin in analyzing the present trend in salary reduction in order to ascertain its justification.

This study attempts to answer the following questions: Can a school be too small to be profitable? Does the size of the school determine the pupil-hour cost of instruction? Are the teachers paid too much in relation to other items of the budget?

Several methods of procedure were necessary to give validity to the findings. The study was made

of rural high schools enrolling 250 pupils or fewer, in typical six-year high schools in the north central section of Indiana and in two four-year high schools in a comparable region of Illinois. Eight six-year high schools were selected with an enrollment of eighty-five to 241 pupils. The two four-year high schools of Illinois discussed in this study were selected at random for the purpose of serving as a check in this investigation.

The salary of the teacher was used as the basis of study because the teacher salary is the starting point in determining the actual instructional costs and this is the part of the budget that is receiving the greatest amount of public attention. All costs have been reduced to a pupil-hour basis in order that expenditures of the various schools might be on a comparable basis. Such items as variance in the length of the school term and the length of the instructional class period have been equalized.

The formula used for the pupil-hour cost of instruction is that employed by Kimball in his Connecticut study of 1924 and by Hood reporting in September and November, 1929, issues of *The Nation's Schools*.

The salary of the teacher is divided by the number of weeks in the school term to determine the salary per week. This sum, which we call the weekly-period-hour block of instruction, is divided by the number of classes held during this period in one week to determine the class-hour cost of instruction for one day in that particular subject. This sum is then divided by the number of pupils

TABLE I—TEACHERS

	Salary			Teaching Load			Pupils per Teacher		
	High	Median	Low	High	Median	Low	High	Median	Low
<i>Indiana</i>									
Group I	\$1950	\$1320	\$1120	448	399	224	17	16	12
Group II	1800	1300	1110	658	561	448	30	22	17
Group III	2030	1320	1240	1018	623	306	31	25	19
Group IV	2330	1350	1200	789	667	318	34	27	17
<i>Illinois</i>									
Group II	2875	1550	1375	810	499	310	32	21	15

TABLE II—CLASS SIZE IN TEN TYPICAL SMALL HIGH SCHOOLS

		Indiana—Six-Six Plan							
Class Size		1-5	6-10	11-15	16-20	21-25	26-30	31-35	36-
Group I	(a)	....	7	12	7	2	....	....	....
	(b)	....	7	12	4	2	3	....	....
Group II	(c)	....	4	6	....	10	9	1	....
	(d)	1	1	6	6	3	9	2	2
Group III	(e)	....	2	5	5	19	5	1	....
	(f)	....	1	6	4	12	3	....	9
Group IV	(g)	....	6	5	9	15	3	5	5
	(h)	....	1	2	10	5	5	6	11
		Illinois—Four-Year Plan							
Group II	(i)	....	2	17	9	2	4	2	1
	(j)	....	1	4	8	4	3	7	3

enrolled in that class and thus is obtained the pupil-hour cost of instruction in any subject for any length of time.

The schools reported in this study have been divided into four arbitrary groups. Those having an enrollment of less than 100 pupils form Group I; those with an enrollment of 101 to 150, Group II; those with an enrollment of 151 to 200, Group III, and those with an enrollment of 201 to 250, Group IV.

Two schools in Indiana, which were thought to be typical six-year high schools of each group, were selected for detailed study. Two rural high schools of Illinois, classified under Group II, were used for comparative purposes. Medians of each group have been used as a fair basis upon which to draw conclusions.

This study was made of seventy teachers teaching 1,371 pupils in 385 subjects. The total number of classes held by these teachers in one week was 1,694. The average class load for these teachers was 24.2 classes per week, which is well within the standard set by recognized agencies. Existing conditions can be determined if we consider the medians presented in Table I. The lowest salary is to be found in Group II which has an enrollment of 101 to 150 students. These salaries are lower in order to permit the employing of another teacher while keeping the expenditures as low as possible. The teaching load of this group exceeds the 625 pupil-weekly-teacher load recommended by standardizing agencies. Fifty-eight per cent of the Indiana teachers, of the schools under study, are teaching six or more classes per day, 21 per cent have five classes each day, and 21 per cent have a daily teaching load of less than five classes.

We do not find the standard class size until we have an enrollment of at least 150 pupils. This standard size could be reached in the smaller schools if more combination classes were organized and if the number of electives were decreased. The principals of these schools are teaching too many classes to do effective work in school administration and supervision. This brings up the question of how many classes a principal may teach and still do effective work in the field for which he was employed.

A careful study of Tables II and III will reveal the fact that too many electives are offered in schools with an enrollment of less than 100 pupils. These schools are attempting to offer the same curriculum as the larger schools, bringing about an excessive number of small classes, which naturally increases the pupil-hour cost in these subjects.

Table III shows that 43 per cent of the classes in this group are held with very small class enrollment, bringing about excessive pupil-hour cost of instruction. The number of electives should be reduced unless the community is willing to bear this cost.

Some complaint has been voiced that the higher institutions of learning determine what the high school must offer in order to satisfy entrance requirements. Others say that the high school must offer subjects that satisfy the community needs and so call for an enlarged curriculum. Are these valid reasons for requiring an excessive number of electives in the small high school which must, in the very beginning, become burdensome to that small taxing unit?

The question of how small a school may be to be effective is again indicated. There are no stand-

TABLE III—SUMMARY OF PERCENTAGE OF CLASSES UNDER EACH SIZE

Indiana—Six-Six Plan								
Class Size	1-5	6-10	11-15	16-20	21-25	26-30	31-35	36-
Group I	25 per cent	25 per cent	20 per cent	07 per cent	15 per cent	....	....
Group II	02 per cent	08 per cent	20 per cent	10 per cent	22 per cent	30 per cent	05 per cent	03 per cent
Group III	04 per cent	15 per cent	13 per cent	43 per cent	11 per cent	01 per cent	13 per cent
Group IV	08 per cent	08 per cent	22 per cent	23 per cent	09 per cent	12 per cent	18 per cent
Illinois—Four-Year Plan								
Group II	04 per cent	31 per cent	25 per cent	10 per cent	11 per cent	13 per cent	04 per cent

ards at the present time which will give a definite answer to that question. The commission investigating the small high schools of Indiana in 1923 had this to report: "The net results are inferior education for the children, overburdened teachers and an unjustifiable drain on financial resources."

It takes but little examination of this statement to see that the crux of the entire problem is in the size of class, size of school to be maintained and the number of electives to be offered. There are those who maintain that small classes are more effective but investigations do not support this contention.

There cannot be effective, economical school procedures under prevailing conditions. The cost is too great to permit economical maintenance. It is certain that standards cannot be raised higher than they are now, teachers paid more, the school term lengthened, and the cost of school operation kept down unless small schools are enlarged or abandoned in favor of larger school units. The only exception to this is when the community is willing to maintain them at an excessive cost, in such a way as to meet the standards.

Small Schools Are Relatively Costly

The pupil-hour instructional costs in the small schools are the highest in the entire number studied. These costs range from the lowest of \$0.04 to the maximum of \$0.45 per class hour with a median of \$0.09. There seems to be a definite relationship between the costs found in such schools and the size of the classes maintained in offering the various electives. As the school increases in enrollment, the pupil-hour cost of instruction decreases in relative amounts. All things being equal, however, one can expect decreased instructional cost as the schools increase in pupil enrollment. One cannot escape the question as to the size of the class necessary for economical maintenance. This investigation shows that it is uneconomical to organize a class with an enrollment of less than twenty pupils.

An attempt has been made to retain the identities of the schools covered by this study. A careful study of the tables will show that the number of classes with an enrollment above twenty increases in schools having an enrollment above 150 pupils. Likewise the pupil-hour cost of instruction decreases from 40 to 45 per cent. Therefore no high school can be maintained economically with an enrollment of less than 100 pupils. Such schools, however, can be maintained only at a sacrifice of educational facilities through the lowering of teacher salaries, lack of proper educational equipment and an overburdened teaching corps.

The median cost of all subjects in the school

under study was \$0.065. The maximum cost of the Group I schools was six and a half times the median cost of all subjects. In Group II schools it was discovered to be three and a half times, while in Group III it was four and a half times and in Group IV it was less than four times the median cost. Group II is the lowest among the schools of this study but Table I discloses the fact that they are the most poorly paid of the entire number studied. They have the largest minimum teaching load for the teachers. This aids in lowering the teacher pupil-hour cost within this group.

The report of the Indiana educational committee published in 1923 gave the median salary for the high school teachers in Indiana as \$1,444, and for the United States at large as \$1,678. The median salary of the teachers included in this study does not reach that of the state at large in any of the

TABLE IV—PUPIL-HOUR COST OF INSTRUCTION

Schools	Enrollm't	Max'm	Median	Low
<i>Indiana</i>				
Group I				
(a)	85	\$.45	\$.10	\$.04
(b)	90	.335	.08	.04
Average		.3925	.09	.04
Group II				
(c)	122	.127	.058	.022
(d)	134	.286	.053	.02
Average		.207	.056	.021
Group III				
(e)	171	.31	.068	.03
(f)	176	.323	.049	.008
Average		.316	.058	.019
Group IV				
(g)	217	.214	.049	.002
(h)	241	.29	.044	.021
Average		.252	.047	.011
<i>Illinois</i>				
Group II				
(i)	106	.358	.074	.034
(j)	129	.111	.039	.027
Average		.235	.057	.031

four groups. Requirements have been raised since the publication of the report, but the salaries in these schools do not seem to have been increased in proportion. Hood found in his study that the median salary in the Massachusetts schools was \$1,450, which compares favorably with that found by this commission in Indiana in 1923. It appears that the teachers in this section of Indiana are underpaid when compared with conditions existing elsewhere. Especially is this true when the present teacher standards are taken into consideration.

The median salary of the teachers in the schools of Illinois contained in this investigation was \$1,550. The greatest difference was in the maximum salary and in all cases the maximum salary was that of the principal. The standards are higher in Indiana than in Illinois and naturally one would expect the higher scale to prevail in Indiana. The principal with the most experience received the lowest salary. Training and experience seem to

TABLE V—MEDIAL PUPIL-HOUR COSTS IN SUBJECT GROUPS

	<i>High</i>	<i>Median English</i>	<i>Low</i>	<i>High</i>	<i>Median For. Lang.</i>	<i>Low</i>	<i>High</i>	<i>Median Math.</i>	<i>Low</i>
<i>Indiana</i>									
Group I	.12	.08	.04	.18	.13	.07	.23	.09	.07
Group II	.11	.05	.03	.13	.11	.06	.11	.05	.03
Group III	.08	.05	.02	.07	.05	.04	.12	.05	.02
Group IV	.10	.045	.03	.09	.06	.05	.05	.05	.03
<i>Illinois</i>									
Group II	.08	.04	.03	.08	.06	.04	.10	.06	.03
<i>Indiana</i>									
	<i>Science</i>			<i>Commercial</i>			<i>Social Science</i>		
Group I	.10	.09	.04	----	----	----	.14	.07	.04
Group II	.12	.04	.03	----	----	----	.10	.05	.03
Group III	.08	.05	.03	----	----	----	.09	.05	.03
Group IV	.05	.03	.02	.18	.12	.07	.09	.045	.02
<i>Illinois</i>									
Group II	.11	.05	.02	.11	.08	.03	.13	.055	.03
<i>Indiana</i>									
				<i>Music</i>			<i>Art</i>		
Group I				.45	.31	.18	.31	.15	.07
Group II				.13	.065	.02	.13	.11	.02
Group III				.32	.19	.10	.25	.12	.04
Group IV				.29	.18	.05	.17	.07	.05
<i>Illinois</i>									
Group II				.17	.07	.04	----	----	----

TABLE VI—MEDIAN SUMMARY OF PUPIL-HOUR SUBJECT MATTER COSTS

<i>Indiana</i>	<i>High</i>	<i>Median</i>	<i>Low</i>
For. Language	.12	.085	.055
English	.105	.06	.03
Mathematics	.13	.06	.04
Science	.09	.05	.03
Commercial	.18	.12	.07
Social Science	.11	.05	.03
Music	.30	.17	.09
Art	.22	.12	.05

have little effect on the salary schedule. There should be proper recognition of these, with a salary schedule based upon such factors. There is a tremendous teacher turnover in these schools, which may be accounted for in part by the present unfair salary status.

All the subjects offered in these schools were divided into eight arbitrary groups classified as English, foreign languages, science, mathematics, commercial, social science, music and art. Table V gives the relative costs of instruction in these subject groups.

Examining the instructional costs of these various classifications we find, according to Table VI, that the lowest median costs are to be found in the natural sciences and the social sciences, with a median cost of \$0.05. Mathematics and English follow with a cost of \$0.06 and foreign languages next with \$0.09. This is not in accord with the findings of Hood who found the lowest to be in social sciences with \$0.055, then English with \$0.071, followed by commercial at \$0.103 and natural sciences at \$0.108. This places the natural sciences in the fourth place in Hood's study while

in this investigation it was found to occupy the first place, being the lowest in cost. The reason is undoubtedly due to the low salary schedule and the heavy teaching load carried by the teachers of natural science. The study made of these schools disclosed the fact that one science teacher was teaching thirty-eight periods out of the forty-period week.

Music has the highest pupil-hour cost because of the small number electing advanced music and the unusually high salary paid those teachers in comparison with that paid teachers of other subjects. The present license system in the state has a tendency to narrow the work carried on in the rural school.

An interesting summary is found when comparing the studies made in three separate states. Table VII gives this information in as accurate form as it is possible to obtain it. Comparative items were used as much as possible and where they were not comparable, they were reduced to such terms as to offer as fair a comparison as possible.

A Question of Poor Distribution

The schools in this study have the smallest number of small classes, the largest number of pupils per teacher, the heaviest teaching load and the highest median instructional cost as well as the lowest median instructional cost. Is it not true that the above indicates that the teacher salary is not the proper place in which to begin an economy program? The teachers of the Indiana schools in this study, as an average, are teaching more pupils per class hour with a heavier teaching load each

week and are doing this on a smaller median salary. The median salary for the teachers of this group is \$1,300 which is below the median of the state and \$378 below the median of the country as a whole. No teacher of this group (Group II) in one of the schools reporting receives the median salary of all the schools reporting except the principal, and he receives the lowest salary of all of the principals reported here. This principal has the most successful experience of those in this study. It would seem that the rural school authorities of Indiana do not give enough recognition to experience and preparation. A definite salary schedule should be formulated for the rural high schools of Indiana in which experience and preparation are properly evaluated and followed by proper remuneration. It is not a question of paying the teaching staff too much but paying some on these staffs excessive salaries. This study shows that administrative salaries are too high in relation to the highest teacher salary on the staff.

The tuition costs are the only ones that the public learns about and they form the basis for public opinion. There are many who never give it a thought that the teacher salary forms only a part of this figure or they are of the opinion that the teacher salary is the larger part of the per capita cost. What part of this cost is actually devoted to instructional costs? No attempt has been made to ascertain the administrative costs as they are usually hidden under various items of the report.

Actual cases have been traced through the sched-

educators that this cost should include at least 5 per cent for administration which would bring the median instructional cost of the high school pupil to 50 per cent of the budgetary allowance. This will, again, relate the economical figure to the Group III schools, or those with the enrollment of 150 pupils or more.

This study is not concerned with costs other than instructional, but seemingly over half of the school funds is devoted each year to such items as transportation, janitorial service, maintenance of school property and other items of a similar nature.

In light of the information presented in this investigation one would expect that officials seeking ways to economize would turn to the costs of heating, lighting, transportation, janitorial service, which are plainly excessive in comparison with other items included in school costs. Here, it seems, is the proper place in which to begin the economy program.

Might it not be well to ascertain the per pupil investment as represented in transportation facilities in relation to the per pupil investment in laboratory facilities within the school, in the relative newness of purchase, in adequacy? Is it true that money has been utilized in erecting new buildings, in buying new school busses which is out of proportion to that which has been utilized in providing teaching facilities within the school building?

It should be possible to lower maintenance costs without causing suffering on the part of school children. Educational values must not be sacri-

TABLE VII—INSTRUCTIONAL COSTS

<i>Schl. Enrollm't</i> 101-200	<i>Instructional Costs</i>			<i>Salaries</i>	<i>T. Load</i>	<i>C. Size</i>	<i>Under 10</i> <i>Class Enrollment</i>
	<i>High</i>	<i>Median</i>	<i>Low</i>	<i>Median</i>	<i>Median</i>	<i>Median</i>	
Kimball, 1924 Connecticut	\$.10	.....	.046	\$1425	468	20	21.9 per cent
Hood, 1929 Massachusetts	.109	.074	.054	1400	457	20	30. per cent
Karns, 1932 Indiana	.123	.055	.030	1310	592	24	7. per cent

TABLE VIII—RELATIVE MEDIAN SCHOOL COSTS (INDIANA)

	<i>Tuition Cost</i>	<i>Instructional Cost</i>	<i>Other Costs</i>	<i>% Instruction</i>
Group I	\$131.59	\$49.30	a. Maintenance	35 per cent
Group II	99.35	41.60	b. Fixed Costs	42 per cent
Group III	82.88	51.20	c. Operation	61 per cent
Group IV	92.06	38.80	d. Adm. and Supv.	42 per cent
Average	101.47	45.225		45 per cent

ule of studies for each of the four groups under consideration. Table VIII discloses the result of this investigation.

Investigation discloses the fact that 35 per cent of the money spent in schools with an enrollment under 100 was for instruction and in the schools with an enrollment between 150 and 200 pupils this amount increased to 61 per cent.

There seems to be a general agreement among

ficed for other things. Competent teachers justly rewarded for service rendered, with proper educational facilities in the form of equipment, should be available for every American child.

Does it not seem to be a travesty upon educational justice to have fine school buildings with meager educational equipment, presided over by submissive underpaid teachers, attempting to teach an overcrowded program to children who

have been transported to the school building in modern busses?

Some of the conclusions which can be formulated from this study in light of accepted standards are as follows:

1. Schools with an enrollment of fewer than 100 pupils maintained 88 per cent of their classes with fewer than twenty pupils per class.
2. Classes with an enrollment of fewer than twenty pupils are maintained at excessive financial cost.
3. Schools with an enrollment of fewer than 100 pupils cannot be maintained in an economical manner.
4. The number of electives should be restricted in high schools with an enrollment of fewer than 100 pupils.
5. The median teaching load of 625 pupils per week is approached in schools with an enrollment of 150 or more.
6. Teacher salaries in some sections of Indiana are below the median of the country as a whole.
7. Effective economy does not seem to be attained through reduction of teachers' salaries.
8. Teachers' salaries are not based upon their experience and preparation. A definite salary schedule recognizing these factors should be inaugurated.
9. Low pupil-hour costs often indicate low teaching salaries.
10. Principals in schools with an enrollment of fewer than 150 are in reality teachers and not administrators.
11. Music maintained the highest pupil-hour cost in the schools covered by this study.
12. Latin and home economics maintained the largest number of small classes followed by plane geometry, advanced music, advanced art and manual training, in the order named.

Recommendations for Estimating School Population

If overcrowded or poorly utilized school buildings are to be avoided, if the school program is to be properly adjusted to housing conditions, and if efficiency and economy are to be effected in the operation of the public schools, future needs, in terms of enrollments, must be anticipated with a fair degree of accuracy.

Leo M. Chamberlain and A. B. Crawford, Bureau of School Service, College of Education, University of Kentucky, recently completed a study to check the accuracy of approximately fifty surveys made since 1920 in which definite attempts have been made to estimate the total or school

population of a city or community for the year 1930. The evidence submitted leads them to offer the following recommendations for future practice:

School enrollments may be predicted directly from school data, indirectly from estimates of the total population of the community the schools are to serve, or by a combination of these two methods. In the majority of the school surveys dealing with the subject an effort is made to predict the total population of the city or other area and, with this prediction as a basis, subsequently to estimate the needs of the schools in terms of enrollments. When attempts are made to predict total population, the method may usually be classified under five heads: (1) the use, almost exclusively, of past census data without complicated procedures; (2) The Bell Telephone Company's method or the method of index analysis; (3) the equation method; (4) the multiple factor method, and (5) a combination method in which predictions are based on the average results of the application of several different methods.

A More Sensible Procedure

Apparently school enrollment predictions have, in general, been more accurate than have total population predictions attempted by school men, even when a relatively large number of the enrollment estimates have been based on previously predicted population totals. Moreover, there seems to be no consistent tendency for errors in one type of prediction to correlate positively with errors in the other. This is, of course, equivalent to saying that a prediction of total population, even though reasonably accurate, has not always resulted in a school enrollment estimate of like accuracy.

Apparently a more economical and sensible procedure, and probably a more accurate one, to be employed by survey committees and school administrators would be that of estimating future school enrollments directly from past school data, particularly where these data are readily available. Total population trends would, of course, be observed, but no effort would be made to predict specifically the total population of the community which the school system is to serve. Especially would there be avoided involved and technical methods of population prediction, which have in the past been generally less accurate than simple estimates or than estimates based on information borrowed from the Bell Telephone Company.

The difficulty of accurate prediction under any circumstance must be recognized, and original estimates must be promptly and continuously altered in terms of newly discovered facts so as to be kept up-to-date.

A School Building That Meets Today's Needs

Sound picture equipment in the auditorium, a radio system that connects with each room and sound insulation where it is needed are a few of the outstanding features of the new high school at Lynn, Mass.

THE new English High School, Lynn, Mass., represents the finest type of cooperation between the agents of the city council and the school committee.

Much time was spent by the architects, acting as agents of the superintendent of buildings, and Ernest Stephens, deputy superintendent, representing the school committee, studying plans of recently constructed buildings, visiting outstanding schools and making details of the auditorium, the science suite, the household arts department, the library, the art studios and the gymnasium section, before the architects began putting the building together. This careful study has resulted in a building so constructed that it may be administered easily and effectively, with adequate floor space for special purposes and modern features in the different units.

The administrative offices occupy space equivalent to three classrooms. They consist of a private office for the principal with a separate waiting room for visitors, a general office, acoustically treated, a closet for the central radio apparatus, a

separate work office for the clerks, an administrative supply room, a fireproof vault and an office and private waiting room for the vice principal.

The building is an E shaped structure. It is 434 feet long and runs southeast to northwest, the wings running northeast to southwest. This gives ideal lighting throughout the building. The laboratories, the classrooms, the gymnasiums, the cafeteria, the library and the drawing rooms all get a full share of natural light. The building has been constructed so that additions may be made to the wings or another wing may be erected.

The right wing is given over to the auditorium. The dimensions of the left wing were governed by the needs of the science laboratories and the type-writing and office appliance rooms. The central arm of the E is devoted to the cafeteria on the first floor and the gymnasiums on the two upper floors. There is no basement.

The cafeteria will seat about 800 pupils at one time. The south side of the room is equipped with tablet armchairs so that the equivalent of three classes may use this space for study purposes at



By SANBORN AND WEED
Architects, Lynn, Mass.

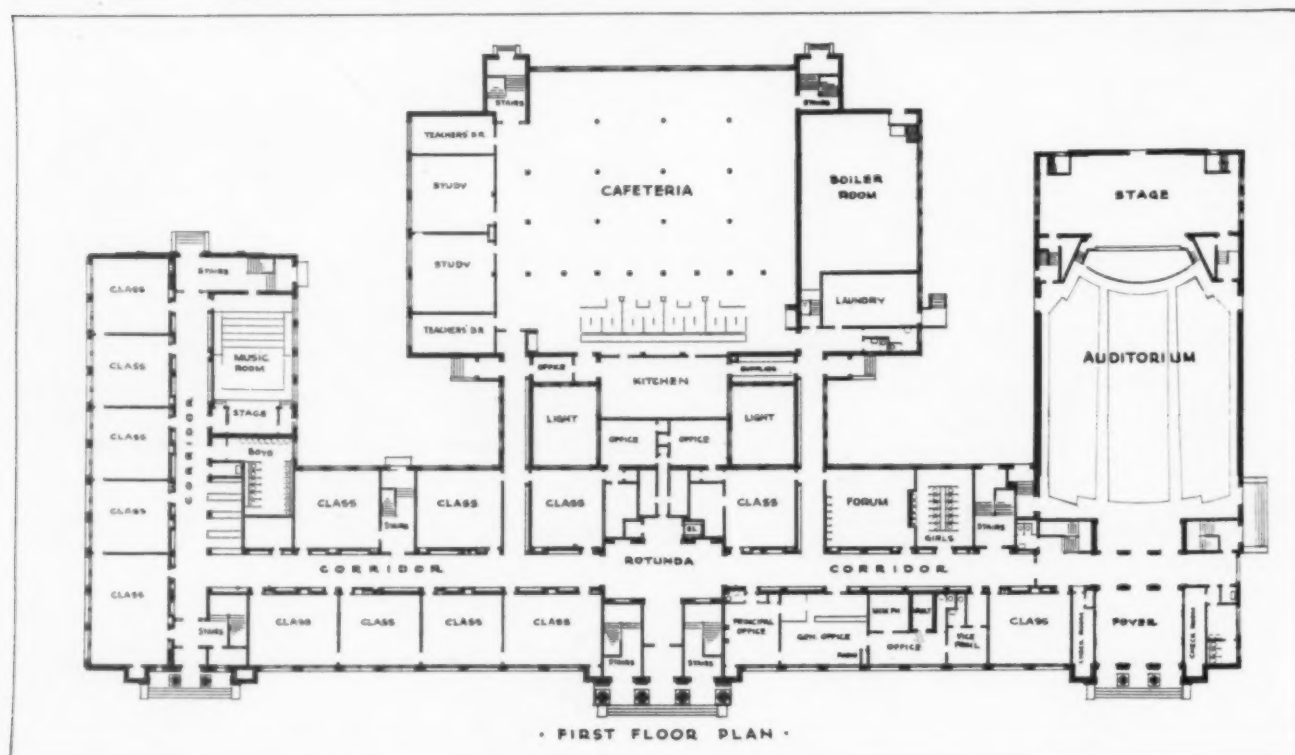
one time. To use valuable space on the first floor of the building for lunch room purposes only is not good practice.

The kitchen is a modern hotel kitchen in every detail. A school that is required to serve food to 1,800 or 2,000 pupils in a short space of time faces a difficult problem and every detail of food preparation and service must be carefully worked out. In the center of the cafeteria, away from the counter and steam tables, is an octagonal counter for the sale of cookies and candy. The main counter is divided into five sections so that five relays of pupils may be served at one time.

The school plot consists of ten acres of a thirty-one-acre park, and the pupils have ready access to

Both the boys' and the girls' locker rooms have their own toilet facilities and separate entrances and exits. It is possible in fair weather for the instructors to take their classes outside for exercise and play.

The boys' locker rooms are equipped with showers. In the girls' locker rooms individual compartments of terrazzo entering directly to the shower heads enable sixty girls to take showers at one time. The lockers and the shower rooms are specially vented to keep the air pure and sweet at all times. The windows of the gymnasiums are of special glass that transmits the ultraviolet rays of the sun. The apparatus in the gymnasiums is of the usual type. A special room for rapid drying



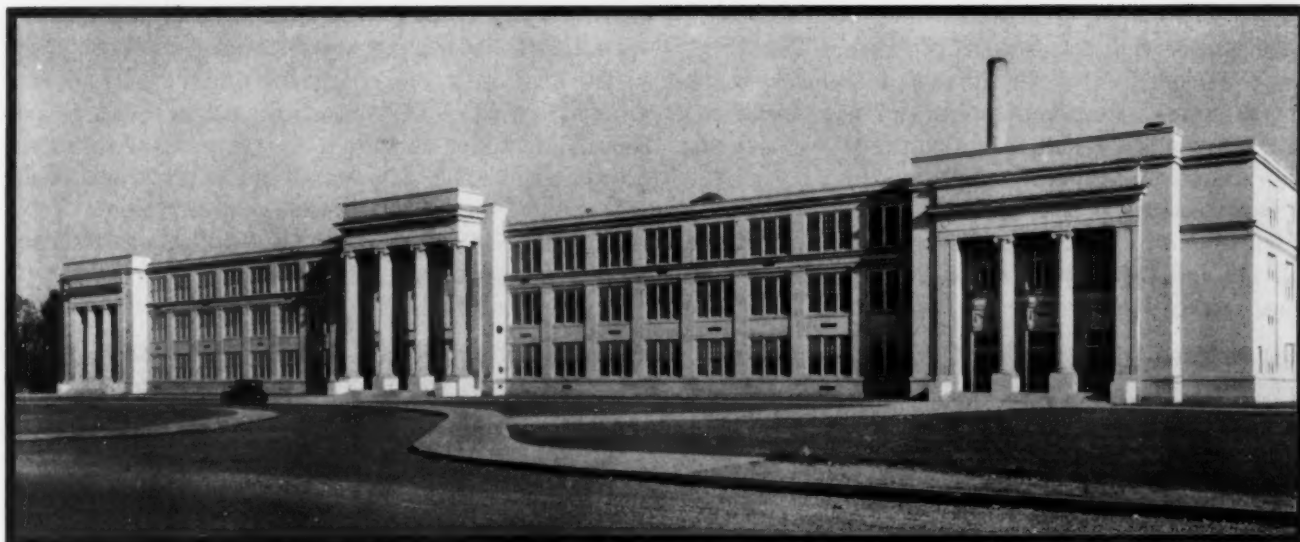
An auditorium seating nearly 1,500 persons and a cafeteria that will accommodate 800 persons are two of the principal units of the main floor. Study rooms on the south exposure of the cafeteria add to the usefulness of this unit.

the spacious school grounds in suitable weather.

The gymnasium section is directly over the cafeteria. Together the two main gymnasiums measure 75 feet by 100 feet, divided by large soundproofed doors. These doors may be opened when there is need for one large room. The ceiling is 22 feet high and is acoustically treated. Each gymnasium has a piano closet and an apparatus room so that the floor apparatus may be placed under lock and key when it is not in use. The offices of the instructors have observation windows, 2 feet by 2 feet, looking into the gymnasium so that if an instructor is obliged to go to his office he can still supervise his class. Adjoining the gymnasium section are rooms especially equipped for corrective work.

and airing of athletic material adjoins the boys' locker room. Next to this is a permanent storage room for athletic materials after they are returned from the laundry. This room is equipped with large drawers, counter shelves and bins. Easily accessible to the gymnasium section is a storage room for portable bleachers. There is no running track. The pupils have access to a quarter-mile cinder running track and a 200-yard straightaway in the park. There is a laundry in the building equipped for the washing of towels for the two senior and the four junior high schools.

The music room is entirely separate from the rest of the building and it is virtually soundproof. The floor is pitched. There is a small stage, the



Tall pillars at the three front entrances of the English High School, Lynn, Mass., add beauty to the structure.

floor of which is sound insulated. The room may be used for orchestral and band concerts. Classes in harmony and counterpoint are a part of the regular program. The room is acoustically treated. Since it is quite close to the administrative offices, the music room can be conveniently used for faculty meetings.

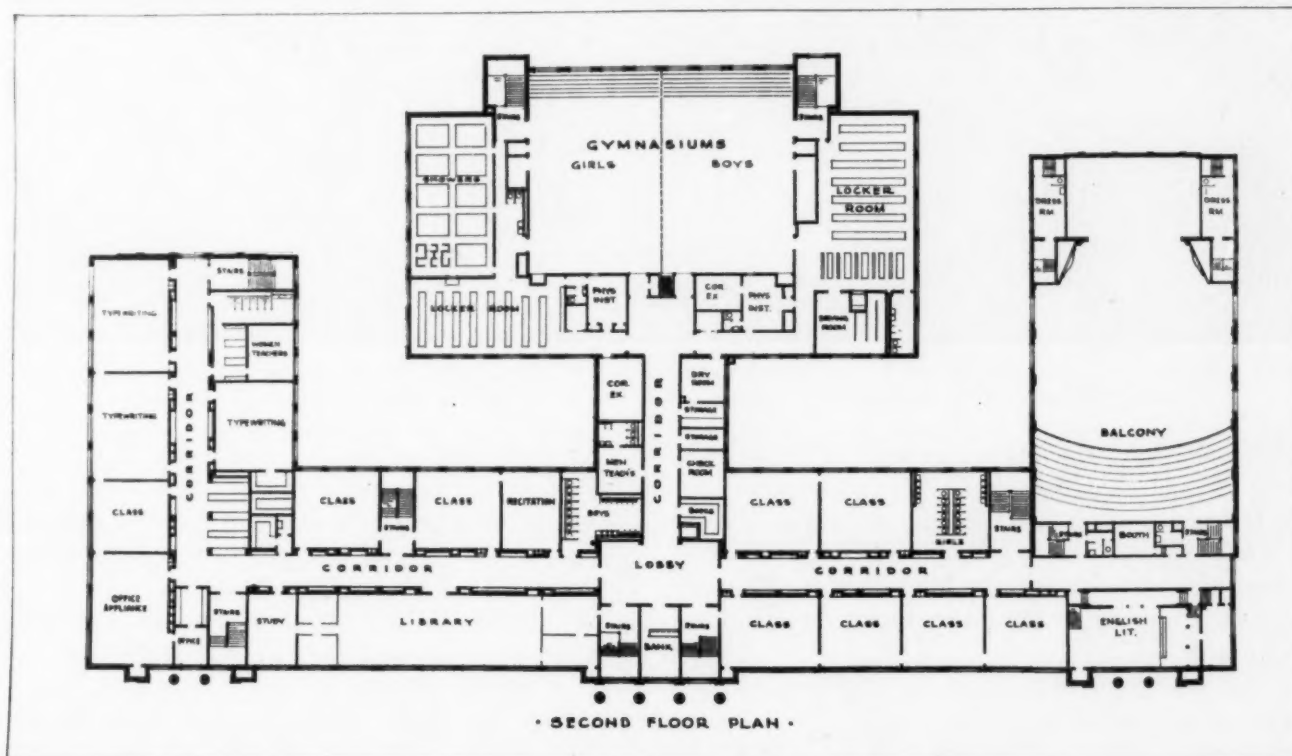
The library will house 109 pupils at one time. At one end are two conference rooms with glass partitions; at the other end are one conference room and a workroom. The conference rooms are intended to serve the needs of small groups of pupils sent to the library to study special problems. The

shelves in the library will accommodate approximately 5,000 books.

The typewriting rooms are equipped with mechanical dictating machines.

Rest rooms for the men and women teachers are on the second floor of the building.

The space over the entrance to the auditorium provides an ideal spot for the English literature room. The design of this room and the furniture for the platform and balcony are of the modified Tudor type. By using portable chairs an audience of 100 persons can be accommodated. The room is thus available for lectures to small audiences,



The gymnasium section is on the second floor immediately above the cafeteria. The library and the English literature room, over the entrance to the auditorium, are features of the second floor arrangement.

for debating, for dramatization, for practicing class plays and for study purposes. The three steps leading to the platform may be filled in by three inverted steps containing portable footlights in the apron, when the platform is to be used for dramatization or for lecture purposes.

The science suite consists of five laboratories, one chemical, one combination physics and chemical, one physics and two biological laboratories. These laboratories cover the entire left wing of the

an infirmary containing ten beds and the necessary closets, storerooms and toilet facilities.

The hospital rooms are in the midst of the household arts suite. This was necessary because the faculty does not include a health teacher and supervision of the infirmary must rest with the teachers in the home economics department.

The home nursing room was designed to serve as a physical examination room. There is an elevator to carry pupils to the third floor who need



The English literature room is one of the most attractive spots in the building. The design and furniture for the platform and balcony are of the modified Tudor type. Portable chairs seat an audience of 100 persons.

top floor. There are five workrooms in the science suite for the storage of apparatus and supplies and for the preparation of equipment needed in experiments. The equipment may be set-up on movable tables and wheeled into the laboratories. This arrangement prevents the laboratories from becoming untidy.

The household arts suite is composed of two clothing laboratories, a cooking laboratory, a dining room, a nontechnical room for class exercises of an academic nature, a home nursing room and

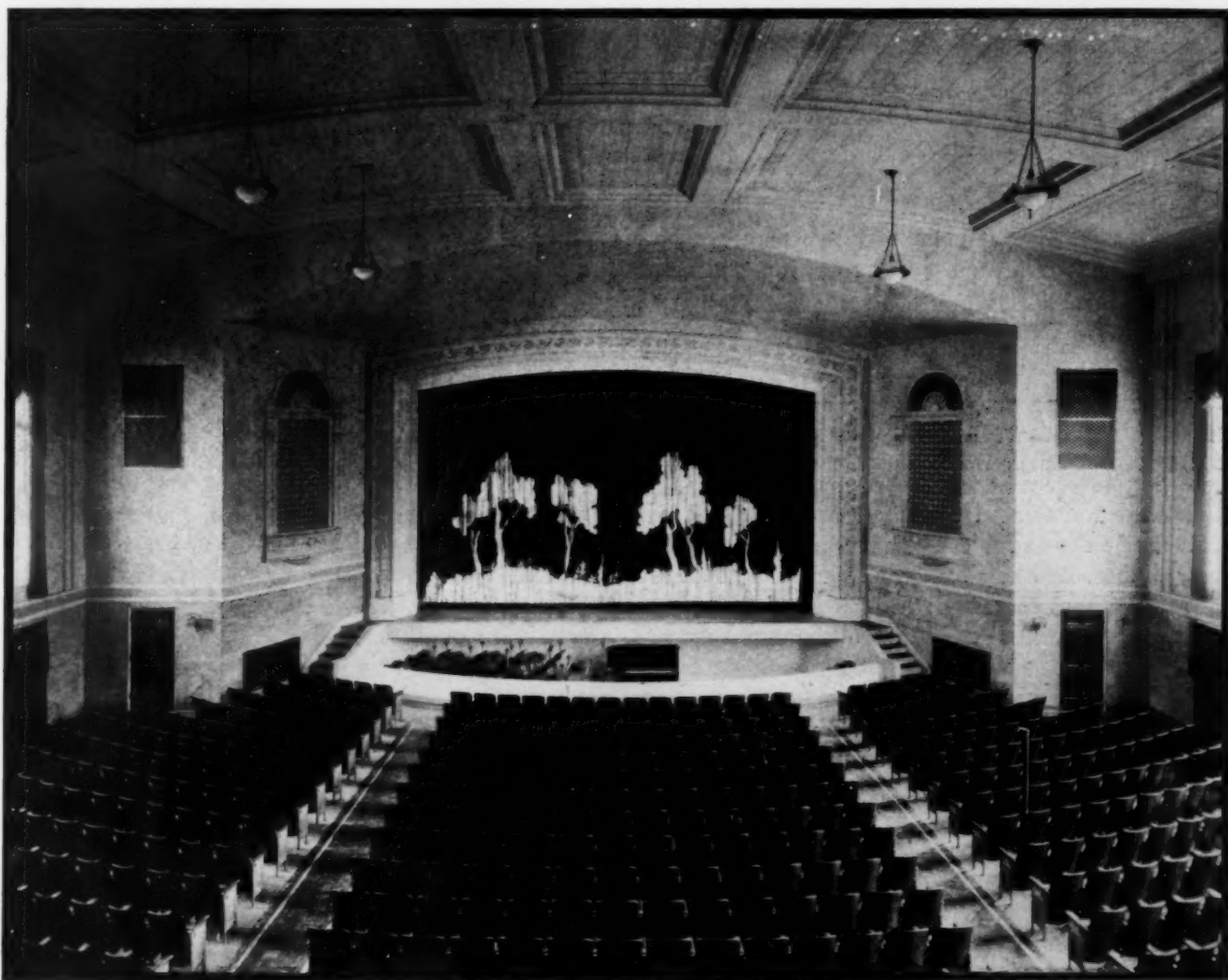
attention in the infirmary. In a city like Lynn where both the parents of many pupils work, it is sometimes necessary to care for pupils, girls in particular, for several hours, which is the reason for having ten beds in the infirmary.

The cooking laboratory has six unit kitchens, each equipped so that four girls can cook at one time. Four of the unit kitchens have gas stoves, one has a large gas range, and the other has an electric stove. There are set tubs for instruction in laundry work. An opportunity is also afforded

to get the girls together as a class group. Cooking is on the meal plan basis, hence the separate dining room.

Each of the clothing rooms has a separate fitting room, a built-in display cabinet and electric and foot treadle sewing machines. Each girl has an individual box in which she keeps her sewing kit and the material upon which she is working. The maximum sewing class is twenty-four pupils. The twenty-four boxes for each division are kept in a

and recitation rooms. Most of the classrooms are designed for thirty-five pupils, and a few of them for forty-two. Lynn has changed from the selective type of high school to the comprehensive type of school. Pupils in the twelfth grade are permitted to choose their school. Consequently we have some crowding in this building, which was designed to accommodate a maximum of 1,800 pupils. The enrollment is now about 2,000. The industrial arts work for boys for both comprehensive high



A regular theater stage, a large orchestra pit, an organ and sound picture equipment are included in the auditorium section. Careful consideration was given to the acoustical treatment in designing this room.

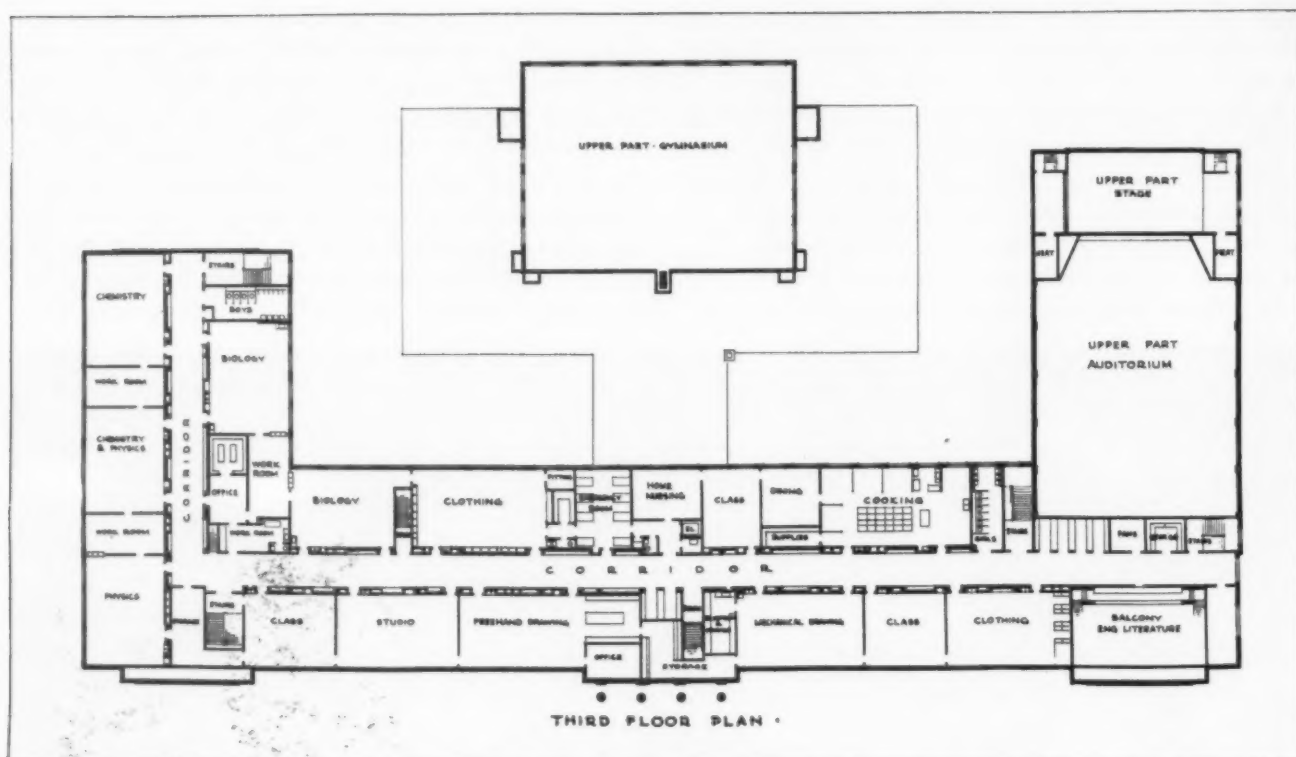
locked metal cabinet built in the wall. This arrangement is helpful in maintaining efficiency in the room.

There are two art studios and a mechanical drawing room. The mechanical drawing room has a large storage closet and a blue print room. One of the art studios has a large storage closet with a specially designed little theater for the storage of scenery. It also has a private room that serves as an office and a display room. The other studio has a section devoted to the crafts.

The rest of the building consists of classrooms

schools is carried on in a building situated between the two high schools. It had been intended to develop a trades school with the comprehensive schools, but this part of the program has been temporarily postponed on account of economic conditions.

Blackboards appear only on the front wall of the classrooms. The balance of the wall space is made of cork carpet for bulletin purposes. The metal trim for the blackboard and cork board has the top section grooved so that by means of specially designed hooks, maps and other materials may be



The science laboratories and workrooms occupy the left wing of the third floor. The household arts section, an infirmary, two art studios and a mechanical drawing room are also on this floor.

suspended and moved about easily when desired.

Most of the windows are curtained with double-hung shades. The science laboratories, the library, the auditorium, the English literature room, two geography rooms, one social study room and one English room are equipped with opaque curtains or shades for visual education purposes.

Each room is connected with the radio system so that the principal may communicate with the pupils and the teachers without calling them together in the auditorium.

The building is equipped throughout for vacuum cleaning. It has a corridor locker scheme. Every room is a home room station.

The auditorium occupies the west wing and may be used for outside purposes without disturbing the rest of the building. It will seat 1,492 persons. The stage is a regular theater stage, and will accommodate 300 persons. There are dressing rooms for men and women to the right and left of the stage. The orchestra pit will hold forty musicians. The auditorium is equipped for the use of sound pictures. The picture booth has two sound projectors, a projection machine and a spotlight. The proscenium arch is 32 feet wide and the stage is 30 feet deep. There is an apron in front of the fireproof curtain, some four feet wide. The stage may be approached directly from the floor without going through the off-stage section. There is a beautiful organ loft on each side of the proscenium opening. The draperies, the acoustical ceiling and

the backs of the opera chairs were all considered in the acoustical treatment of the auditorium. The acoustics of the room are very satisfactory.

The principal's office, the little theater and the office in the art suite, have been equipped with reproductions of period furniture. While extreme care was taken to use durable, good looking, serviceable materials everywhere in the building, it was felt that the use of some special pieces would be effective and would give the pupils an opportunity to appreciate the beautiful in furniture.

The building cost \$1,378,852.50. Its contents cost \$173,496.33.

Rural Schools Spend Millions in Transporting Pupils

More than \$55,000,000 is spent each year in transporting children in rural sections of the United States to their schools, according to the Federal Office of Education. Approximately 55,000 motor vehicles and 4,000 horse drawn vehicles are employed each day in providing transportation for these children.

Although the one-room schools are disappearing at the rate of 3,000 a year, the department estimates that there are still approximately 145,000 one-room schools and about 17,000 consolidated schools in the United States.

Every Student Should Work a Year Before Entering College

A physician gives a different slant on our educational system. He believes its products would be greatly improved if students were required to gain practical experience before admission to college

By EDWARD H. OCHSNER, M. D., Chicago

THAT the percentage of failures in life, the result in part at least of our present system of education, is nothing short of appalling must be evident to anyone who has dealt extensively with the products of that system. There are, of course, many reasons for this state of affairs but there are a few generally overlooked defects in our educational system which as a doctor I think could easily be remedied.

The great majority of children are constantly being overtaxed both mentally and emotionally. They are urged to learn things with great mental effort at one age period that they could acquire with relatively little exertion when they were a few years older. This is a conclusion I reached when teaching school many years ago. Since then I have had an opportunity to prove the correctness of this theory.

"Pressing" Ruins Child's Health

At my suggestion three children were kept out of school until they had passed their ninth birthday, that is, until each was fully eight years old. At the end of two years of schooling the eldest of these three children entered the fifth grade and a year later it was difficult to restrain the principal of the school from pushing that child ahead of her classmates of the same age. The child graduated from the grade school at the head of her class, about two months before she was fourteen years old. I did not encounter much opposition on the part of the school principal with the next two children, although on several occasions I had to insist rather firmly that they should not skip a grade. All three children did about equally well, each graduating at the end of his fourteenth year. By the time all three had graduated both the teachers and the principal agreed that the system worked well.

Most parents are not economically able to keep their children out of school until they are eight

years old but the educational system could partially meet the situation by reducing formal education to the minimum until the child is mature enough to comprehend what he is studying instead of learning by rote. Play, singing, drawing, writing and other forms of manual exercises could be substituted for such subjects as spelling and arithmetic. What children learn in these two subjects with much effort at the ages of six and seven years, they can learn in a few weeks after they are eight years old, if they are taught properly. It took the medical profession a long time, and the good mothers of the world much longer, to learn that a baby must reach a certain age before it can digest and assimilate certain foods. Our educators do not seem to have learned this lesson in reference to intellectual foods, or, if they have, they do not profit by it.

The manner in which children are now being "pressed" both intellectually and emotionally causes too much wear and tear on their nervous systems. This is one of the reasons for the prevalence of functional nervous disorders. I have had a number of patients who had been "pushed" through elementary school, high school, and the university, graduating from the last at the age of eighteen years, who were complete nervous wrecks by the time they graduated. These patients are in an almost hopeless condition; only an occasional one can be salvaged. I could report on a considerable number of such cases but shall cite only one.

Six Miserable Years

A young woman twenty years of age came to me with the history of having been extremely nervous for almost four years. She had graduated from high school at the head of her class at the age of fifteen and from a Midwestern university when she was eighteen years old. For the past two years she had been unable to concentrate or to do any mental or physical work—in fact, she was a

chronic invalid. During the last two years she had been under constant medical supervision by competent general practitioners and specialists without gaining relief. She was well nourished, apparently no organic trouble existed and there was nothing in her past life, except the mental and emotional overstrain, to account for her condition. After some two years of treatment without marked improvement, she drifted into other hands. Even if she did ultimately recover, at least six years of this young woman's life had been miserable, and for four years she had been useless to herself and to society.

What Has Become of Mr. X?

An even worse feature of this "pressing" is that it has a tendency to make the student blasé. It robs him of his zeal and of his enthusiasm for learning, and impairs his imagination and his capacity for a creative and purposeful life. It is apt to dull his wits and make him less capable of adjusting means to ends. The following illustrates this point. One morning in 1909 I read in a daily paper that X, aged eleven years, had the day previously delivered a lecture on the fourth dimension before the mathematics faculty of Harvard University. I clipped the article and made the following marginal notations: "It is evident that an inordinately vain father and an unwise or thoughtless faculty are doing their utmost to ruin an unusually bright and intellectually precocious boy." On the morning of January 9, 1924, there appeared in the *Chicago Tribune* the following news special from New York: "Mr. X has become a resident of New York, though a rather obscure one. At twenty-six the boy prodigy of 1909 has become a cog in the workaday world of 1924. He is working for \$23 a week as a clerk in the statistical division of an uptown office." The news dispatch stated further that when Mr. X applied for this job he insisted upon being given work "that did not require too much thinking." I have been unable to learn what has become of Mr. X since 1924.

Higher education alone is not an adequate preparation for life. Sound judgment, which is so essential to real success in life, is rarely acquired solely by formal education. Practical experience and self-education on the basis of intelligence were sufficient to ensure success in the early years of our country. The immediate past in industry, business and medicine, has been dominated mainly by those individuals who acquired both practical experience and book learning early in life. With competition as keen as it is today the time is fast approaching when engineers, architects, lawyers, teachers and clergymen who have not had some practical experience in life will find it difficult to

find employment. Even today one of the first things an employer asks is not what degrees the applicant holds but what practical experience he has had. In my opinion the leaders of the future will be the young men and young women who acquire in nearly equal proportions practical experience and scholastic training as they proceed with their education.

Last summer I made an interesting observation in connection with this particular problem. A recent graduate from one of the leading military schools of this country was employed to trim some trees on a country estate. He was supplied with a new set of tools and was given detailed instructions on how the work was to be done. One of the directions was to return the tools to the tool room every evening after work. One night there was a severe rain storm. The next morning the young man discovered he had forgotten the tools and when he came to pick them up they were all rusty. He then spent fully an hour of his employer's time trying to undo the harm done by his forgetfulness with, of course, only partial success. The tools were irreparably damaged.

The school man will say, "Any one can forget; besides, forgetting is no crime and after all this is but an isolated instance." My answer is that this is one of scores of similar occurrences that have come to my attention. Recent high school and college graduates generally have fairly good memories for dates, facts and general theories but when it comes to practical matters their memories are very poor. Employers seldom are altruistic and with many of them their margin of profit is so slight that they cannot afford to overlook the value of practical experience. The college graduate without practical experience is bound to make a considerable number of unnecessary mistakes, some of which prove expensive to his employer. When employment is slack men with little education and less than normal intelligence, but with practical experience, are able to land jobs ahead of the college graduate. These facts explain in part why so many college graduates are unable to secure positions or to hold them when they do get them, and why so many of them become hopelessly discouraged and ultimately disgruntled individuals.

A Story of Two Farmers

The difference between men who have and those who have not had practical experience in their youth is well illustrated by the lives of two farmers whom I knew well as a boy. The one came to this country from Switzerland at the age of twenty-six. He possessed a strong body, a keen mind, an elementary school education, a few hundred dollars in cash and considerable practical experience in

the hard school of life. By hard work, frugal living, careful planning and by making good use of opportunities as they presented themselves, he was able to raise five children and give them all a high school education, besides acquiring a competence by the time he was sixty years old. The second farmer, a man of about the same age, came from Germany about the same time as the first farmer. He bought a farm of approximately the same size, the same degree of fertility and in the same neighborhood as that of the first farmer. The second farmer had a good mind, a healthy physique, a university education, several thousand dollars in cash, which was a considerable fortune in Wisconsin in 1850, but he had had no practical experience. The second farmer raised two children neither of whom finished grammar school, and by the time he was sixty-five years of age he had lost his farm and was practically penniless. This is only one illustration, to be sure, but it is one that could be duplicated over and over again.

Practical Experience Is First Requisite

If an accurate survey or census could be taken of all the men and women who have graduated from American colleges and universities during the past fifty years some interesting facts would come to light. In the first place, I am confident that it would show that the percentage of partial and complete failures is high; in the second place, that the percentage of failures among those who had had no practical experience when they graduated is much higher than the percentage of failures among those who had acquired practical experience before they graduated from or, better still, before they entered college. These conclusions are not just grasped out of the blue ether. They are the result of a broad experience with college graduates in general and with nurses and interns in particular.

Nurses and interns are entering upon their hospital duties each succeeding decade with more formal education and with less practical experience. Each decade they become less helpful in their hospital work and when they graduate they are finding it increasingly difficult to establish themselves in private practice despite their greater store of theoretical knowledge. Competition among them is of course more severe than it was three or four decades ago, but the greatest difficulty is that most of these graduates are so utterly impractical. They have had so little experience before entering upon their hospital duties that they do not know how to deal with people either in a professional or in a business way; they do not know how to make use of the simple measures, appliances and remedies at hand in every home. Most of them are as helpless as children when they come out

from under the protecting care and influence of the hospital. Because of this lack of practical experience they fail to inspire confidence in men and women who are familiar with life and its varied problems. It has been truly said that for many students college is but a prolongation of their immaturity.

Some of the difficulties in our institutions of higher learning are unquestionably due to faulty organization and to shortcomings in the various faculties, but the most glaring defect is in the student material with which they have to work. Instead of the prospective student having a consuming desire for culture, learning and self-improvement, as was the case with a large percentage of the student body in our Western universities fifty, forty and even thirty years ago, many of our young people go to college just because dad is willing to furnish the wherewithal and because mother wants to be able to tell her friends that John is at such and such a college.

Many young men and young women are so immature at the time of entering college that they have no definite purpose or objective in view. This results in their spending a great deal of time and money without an adequate return in culture or in useful knowledge. It is indeed strange that anyone who is at all familiar with the development of the human intellect and human character should expect the average present day mentally and emotionally immature college freshman to derive much benefit from a university course. How can such a student discover, conserve and interpret knowledge and ideas? A college or university education is apt to be largely wasted unless, or until, the student has acquired a reasonable amount of practical experience, judgment, stability of character, sincerity and seriousness of purpose.

Should Work a Year First

Several institutions, such as the University of Cincinnati, Antioch College, Yellow Springs, Ohio, Lewis Institute, Chicago, and a few others, believe they have found a solution to the problem. Their methods may be satisfactory for some students and for some institutions, but it is doubtful whether these methods would be feasible in many other institutions. I should like to offer the following suggestion for these other institutions:

I suggest that every candidate for admission to a college or university be required to present the same scholastic qualifications as now, and in addition be required to give satisfactory evidence of having devoted at least one year to the acquiring of practical experience in some reasonably hard, useful self-sustaining work.

That such a plan has worked well in countless

instances can be verified by anyone who will study his college acquaintances. It will be discovered that a large percentage of the really successful college graduates had to work between high school and college. For further proof, I refer again to the three children previously mentioned, all of whom followed this practice. Each one of them worked at least a year between high school and college. They all secured appointments before they had received their diplomas, and all three of them have held responsible, remunerative positions since their graduation. They had received practical experience at a time in life when practical experience counts. They had acquired judgment and habits of thrift and industry, three qualities all too rare among recent college graduates who have done nothing but go to school all their lives.

Would Solve Many School Problems

Considerable experience as a teacher and a broad experience with the products of our educational system as a physician and surgeon convinces me that many intelligent, hard working, serious minded persons do not achieve the success in life to which they are justly entitled because they lack the necessary practical experience and because they fail to acquire this experience at a time of life when they are most receptive to it. The suggestion I have made would overcome some of the present defects in our educational methods and would solve many of the administrative problems now confronting our institutions of higher learning. It would minimize the danger of there being created in this country a condition that already exists in many European countries — an unemployable, intellectual proletariat. It would give the more efficient graduates greater opportunities by eliminating the less efficient as competitors. It would take a heavy load from the placement departments of our universities. It would result in more intimate correlation between the theoretical and the practical, and it would give the student an opportunity to develop some of his most desirable characteristics. It is interesting to observe how a year of steady, purposeful work changes many a harum-scarum adolescent into a more mature man or woman possessing a new conception of the values and purposes of life. An experience like this also teaches the student the value of money and how to secure a job, two things about which the average college graduate knows almost nothing.

It may be urged that a breach of this kind in the educational careers of students would be apt to cause many of them to abandon all plans of going to college. It undoubtedly would, but I am convinced that only those who have no business in college would be affected.

Getting the Public to Vote on School Affairs

In numerous cities in this country school and city elections are combined, as is proposed in Iowa, according to a survey made by the legislative committee on reduction of governmental expenditures of Iowa.

The committee has received numerous suggestions that municipal and school elections be combined not only for the purpose of reducing election expense but also to ensure a larger vote for school directors, who administer one of the largest single portions of the tax dollar. Investigation by this committee has revealed that barely 14 per cent of the voters who turn out for presidential elections in Iowa have voted at recent school elections at which large bond issues frequently come up for approval.

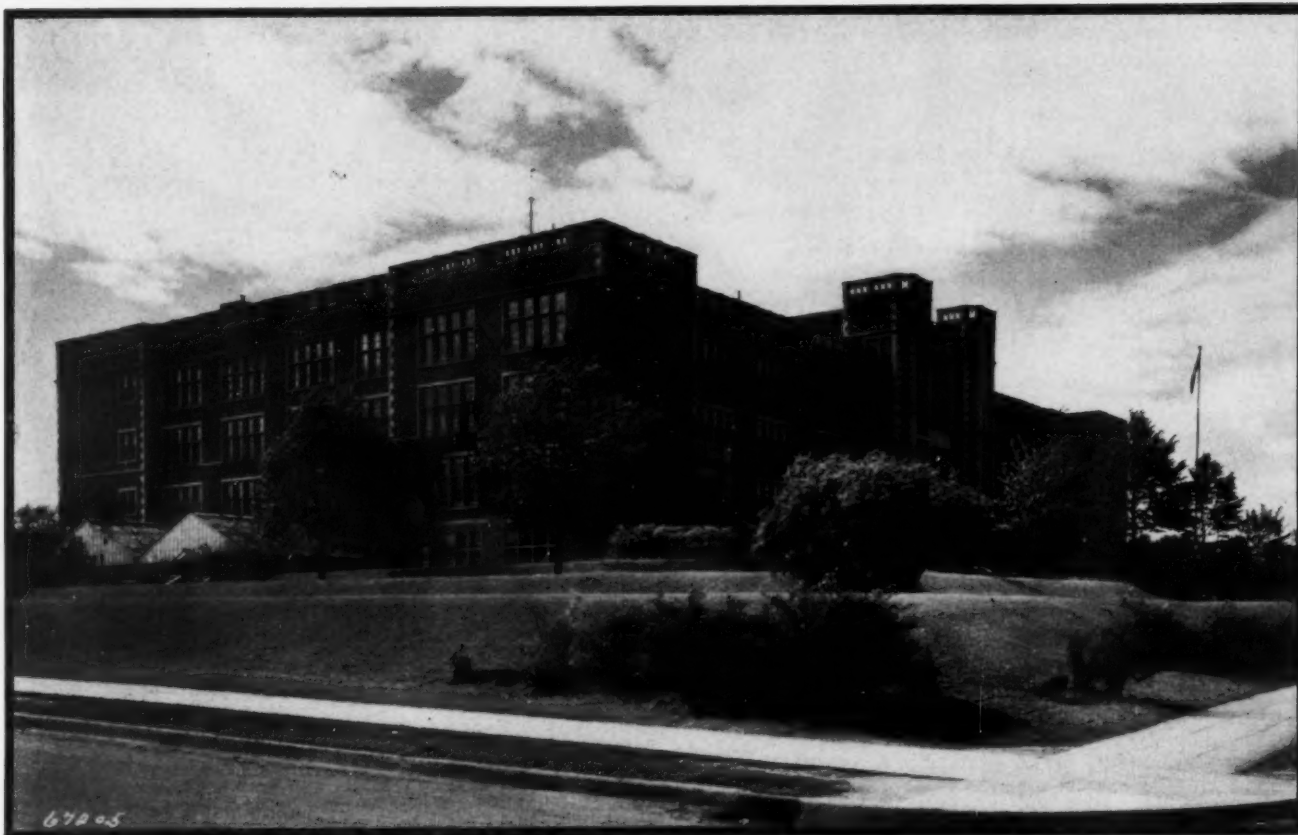
Opponents of the proposal to combine city and school elections argue that school elections ought to be separate to keep schools out of politics. Supporters of this reform point out that possibly this isolation of the school boards has been one reason for the enormous increase in school taxes; also, that the schools are not out of politics.

How Most Cities Vote

Answers to letters sent out by the committee to the capital cities of every state in the Union show that, out of thirty-six replies, sixteen reported that city and school elections are held separately; twelve held combined elections on the same day, and in eight other cities the school board is appointed, either by the mayor, the city council, or, in Delaware, by judges. The committee believes that this is quite representative of the country as a whole, because the laws which affect one city in a state are quite likely to be applicable in most of the other cities.

In Ohio, Vermont, Oregon, Pennsylvania, Nebraska, Georgia, Massachusetts, Missouri, Minnesota and Kansas, in which city and school elections are combined, there are in all probability just as efficient school systems as in Iowa cities where school and city elections are separate, the committee states.

In fifteen of the thirty-six reporting cities, school elections are held annually, in twelve, biennially, and in one, every four years. In Iowa cities school elections are held annually. Several years ago a law was passed providing for biennial school elections in Des Moines, which has worked out satisfactorily, but does not go as far as the committee deems sufficient, in view of large bond issues which are voted for by such a comparatively few of the qualified electors.



Minneapolis Is Calling

In February National Education Association trails will lead to Minneapolis, a city that offers much of beauty and of educational interest to superintendents who will attend the winter meeting

By CARROLL R. REED, Superintendent of Schools, Minneapolis, Minn.

LESS than a century ago, the only trails leading to Minneapolis were those of fur traders who brought their packs of skins to the little trading post at Mendota, just across the Minnesota River from historic Fort Snelling. Picturesque trains of Red River carts driven by French half-breeds in beaded sash and moccasins, brought furs from the great Northwest along the old Pembina trail. Neither Minneapolis nor St. Paul had been dreamed of then, yet 900,000 persons now live in the metropolitan area adjacent to the old fort and the falls of St. Anthony.

The lives of the early settlers were interwoven with Indian experiences, fur trading and lumbering. The city in its development passed rapidly through the fur trading and barter era, the lumber and flour milling era, into its present position as the industrial and distributing center for the great Northwest.

The flour mills, producing 53,150 barrels daily,

make Minneapolis the greatest flour manufacturing center in the world. Grain elevators, with their prodigious capacity of 91,000,000 bushels, give a special character to the city's skyline.

The story of industrial development, of course, is the story of transportation. From the time the first train rolled into St. Anthony in 1862, ten great railroad systems have pushed through to the Northwest. Over motor highways, 35,000 vehicles come and go each day from Minneapolis. Through the modern municipal airport of 325 acres, Minneapolis is connected with the great airways of the country. Within the last few years, river traffic has been revived, so that once again the river steamboats are pushing their loads up and down the Mississippi River.

The Central High School, above, is one of Minneapolis' 112 public schools. The terraced grounds and shrubbery are typical of the natural beauty of the city. Note the greenhouse at the left.



This panoramic view of the central business section of Minneapolis, taken from the Third Avenue Bridge, illustrates the distinct

The love of trees, open fields, lakes, and streams is deep-seated in the hearts of Minneapolis folk. There are within the city 140 parks, consisting of 5,147 acres, more than one acre for every 100 inhabitants. Fifty-six miles of boulevard connect most of these park areas. Included in the "Grand Rounds" are eight natural lakes with twenty-six miles of shore line; six miles of Mississippi River gorge; the famous Minnehaha Falls and glen; four municipal golf courses, and the majestic Victory Memorial Drive, lined with its four rows of memorial cathedral elms.

The great recreational areas of Minneapolis are of inestimable value to the health and social well-being of its citizens. The lakes offer boating, bathing and fishing, and in winter skating and ice boating. Large natural wooded areas offer unlimited opportunities for picnicking. Thirty-two supervised playgrounds give every opportunity for baseball, tennis and football. In the winter, skating, skiing and tobogganing take tens of thousands of children out of doors. More important

still to the happiness of the people is the fact that Minneapolis is the gateway to Minnesota's pine fringed ten thousand lakes.

Thus favored by nature, the city has not neglected to develop those cultural and educational agencies that serve to make living more completely worth while.

The state university, founded in 1851, is now the fourth largest state university in the country. Situated at a bend in the Mississippi, it looks upstream to the falls of St. Anthony and the milling area, and downstream to the park bordered gorge of the Mississippi. The newer buildings at the university have been placed with reference to the new campus as designed by Cass Gilbert. Notable among the private schools of the city is the Dunwoody Industrial Institute with its six million dollar endowment, open to boys of Minnesota. Minneapolis has two fine art galleries and several art schools, one of them operated in connection with the Minneapolis Institute of Arts. The city maintains a symphony orchestra which is justly



distinction of the city's newer public buildings. The small church seems almost lost in the midst of its towering neighbors.

famous, and also several large private schools of music.

All of these cultural influences, together with the beautiful natural setting of Minneapolis, the peaceful stateliness of its churches, the graceful sweep of its bridges, the distinction of its newer public buildings, are of prime assistance to the educational system of the city in inculcating ideals and appreciation of beauty.

Notable among the newer buildings is the Municipal Auditorium, seating over ten thousand people, in which the meetings of the Department of Superintendence of the N. E. A. will be held, February 25 to March 1.

Of great importance to the better life of Minneapolis is the education of its children. The city has been generous to its school system and is proud of it. Even in this period of financial stringency there has been little evidence of any desire to lower the standards of education. Minneapolis is a school going community. Over 50 per cent of the children who enter kindergarten remain to graduate from

high school. A total of 90,033 children were enrolled during the past year, taught by a staff of 2,806 members. Comparatively few children, approximately 12 per cent of the school population, are enrolled in nonpublic schools.

The 112 public school buildings include six senior high schools, two junior-senior high schools, twelve junior high schools, eighty-seven elementary schools, two vocational schools and three special schools.

The system is organized on a single control basis. The superintendent of schools is the executive officer of the board of education and the head of the school system. Four assistant superintendents are assigned respectively to business activities, elementary schools, secondary schools and matters concerning pupil personnel and vocational education. The special services within the school system are organized under directors, as follows: department of health and hygiene, child study, special classes, adult and extension education, curriculum and statistics. The supervisory activi-



The beautiful Institute of Arts, pictured above, is another of Minneapolis' famous buildings, which no doubt will attract many of the delegates. An art school is operated in connection with the institute. The picture on the opposite page is a scene from the University of Minnesota campus, showing the Northrup Memorial Auditorium.

ties in the school system are carried on by the following supervisors: kindergarten, primary grades, art, music, handwriting, nature study, physical education, home economics, industrial arts and counseling. The building personnel includes principals, clerks, teachers, visiting teachers, nurses, counselors, janitor-engineers and pupils.

Three Principles Guide Curriculum

Minneapolis is committed to the junior high school organization and the system has developed rather completely along these lines. Only about 20 per cent of the seventh and eighth grade children still remain outside of the junior high school units, all of which are housed in new buildings especially adapted to the purpose.

The most important characteristic of the Minneapolis public school system is the recognition of the rights and needs of the child as an individual. This individualization of the educative process is being accomplished not by revolutionary reorganization of the school system but by changes in

curriculum, changes in aims and methods of instruction and changes in attitudes and point of view of teachers and principals.

Curriculum construction is guided by the three following principles: (1) that the aims, content and materials of instruction shall be modern and suited to the needs of children developing into citizens of a democracy; (2) that the child through proper diagnostic methods shall be satisfactorily adjusted with reference to the curriculum offered; and (3) that the methods employed shall be such that the best integration is gained of the desirable material offered and the child's own being. Much attention has been paid during the last decade to methods of developing on the part of teachers and principals those attitudes toward the instructional situation that promote (1) an understanding of the real nature of childhood; (2) an understanding of the true social significance of the teacher's task; (3) an understanding of how learning takes place, in the light of recent educational psychology; and (4) an appreciation of the necessity for self-control, patience, sympathy and zeal in bringing about

the most harmonious development of each individual child.

In harmony with these aims, the attendance department has been completely socialized. Visiting teachers and guidance counselors have been assigned to all secondary school units as well as to a number of elementary schools. A child guidance clinic has been in operation for the past eight years. The most important net outcome of the work of the clinic has been a better understanding on the part of teachers and principals of the real nature of conduct disturbances and of the best methods for correcting emotional maladjustments.

Under a liberal state program of aid for special class work, Minneapolis has provided extensive facilities for handicapped children.

The Dowling School for Crippled Children is situated on a spacious site donated by the late William Henry Eustis. Special educational and medical facilities are provided for over 200 crippled and cardiac cases. High school instruction for crippled children is offered at the Marshall Junior-Senior High School.

At Lymanhurst an educational program is provided for children who have been excluded from the regular schools because of tuberculosis. The

school has been operating for ten years, under the joint control of the board of education and the board of public welfare. The two objectives in the establishment of the school were (1) to provide educational equality for tuberculous children and (2) to offer an opportunity for an intensive and extensive study of tuberculosis in children.

Trudeau is an open-air school which is maintained for anemic and undernourished children.

Cooperative Supervision Is Practical

The School for the Deaf, although housed in the Boys' Vocational School building, is operated as an independent school.

Sight saving and Braille classes are conducted in nine centers, six in elementary schools and three in high schools. The curriculum includes regular instruction in music, manual training and domestic arts, as well as academic work, hand training and typewriting.

There are fifty-eight classes for mentally retarded children in forty different centers. A special course of study has been constructed, adapted to the needs of this class of children.

Special teachers of speech are provided, who work in the elementary schools, giving corrective





training to all children who are found to have speech defects.

The whole program is coordinated in a department of special education, with a director at its head.

Supervision in the Minneapolis schools is cooperative in type. Teachers, principals, special supervisors, members of the curriculum construction department and assistant superintendents participate in programs designed to improve instruction.

An important phase of supervision is the demonstration school work. Three centers have been selected to handle different phases of this work.

mines to a considerable degree the character of vocational training to be offered. In a city with so large a proportion of adult workers engaged in commercial and distributing occupations, in contrast to manufacturing, the natural result in the field of vocational education has been the major emphasis on courses of a business and commercial nature and a minor development in the direction of trade or industrial education.

Furthermore, the program for vocational education, as a purely public enterprise, is modified by the existence within the city of Dunwoody Institute, a privately endowed trade and industrial



The Minnehaha School is one of the newer of the eighty-seven public elementary schools in Minneapolis.

The Bancroft School has carried on demonstration lessons for the benefit of new teachers in the system. These teachers were sent there to observe while substitutes took charge of their rooms. The Calhoun School offers demonstration lessons on Saturday mornings for experienced teachers and supervising principals. Following each lesson, there is a professional discussion, led by the assistant superintendent in charge. The Tuttle School is a unit set up in cooperation with the college of education of the University of Minnesota. Observations are carried on there by university students who are preparing for a career in education.

The nature of the vocations at which adults are employed in Minneapolis, as in any city, deter-

mines to a considerable degree the character of vocational training to be offered.

The more recent developments, educationally and industrially, have shown the desirability of a greater amount of general education preceding or accompanying the specialized preparation for a vocation. Accordingly, the public schools have practically assumed the entire responsibility of educating the youth of the city through the high school stage in the vocational fields as well as in the general or academic field.

The work for girls, having had an earlier start, has made greater headway and is now housed in a new building, which is the first unit of a contemplated building for both boys and girls. The building is near the city auditorium and is so de-

signed and placed as to harmonize with the general plan of development for future buildings in the vicinity.

Perhaps the most significant feature of the entire plan for vocational education is the fact that it is incorporated in a plan for the completion of high school. Employers of today are demanding that applicants for employment be close to eighteen years of age and, in most cases, that they have a high school education. According to the plan now established, students in the vocational school can meet both of these requirements and thus can be doubly prepared to enter employment, or to proceed further with their education. In either case these students are equipped to live intelligently and satisfactorily as citizens of the community.

The extension division of the public schools extends school privileges and special lines of education to those not able to obtain it through the regular day school channels. One of the greatest fields of activity in that division lies in the conduct of the night high school where adults who missed earlier opportunities for high school work may follow such study and finally win a high school diploma.

A Training School for Janitors

In the commercial field, courses are offered in various specialized lines. These courses may be taken separately for the purpose of improvement by persons already employed, or as parts of a complete course by those in preparation for employment.

The usual program of Americanization is conducted for the purpose of familiarizing foreign born people with the English language and preparing them for American citizenship.

Minneapolis public schools are well housed. Notable economy has been achieved without lowering standards of utility or design. This has been accomplished by the elimination of waste areas and the avoidance of costly and elaborate ornamentation. Careful study of space allocation, room sizes, building materials, mechanical and educational equipment has resulted in low cost buildings of high educational value.

Gradually but surely it is being recognized that the training and testing of caretakers of public school property are as important and as necessary to the success of the physical plant division of the public school system as is the training of teachers to the success of the instructional division. Since 1914, the Minneapolis Board of Education has maintained a training school for its janitors and engineers. This training school is now conducted on a full-time basis. Attendance is compulsory.

Every employee is given ten hours of training a month. This training has resulted in a marked social advance in the employees, an improved personnel, a better qualified corps of employees, greater efficiency in both service and type of work rendered and a reduction in the number of employees.

The parent-teacher association movement in Minneapolis is about thirty years old, and has enjoyed a remarkable growth in the last few years. At the present time, Minneapolis has over one hundred parent-teacher associations, and these combined form the Minneapolis Council of Parents and Teachers Associations. This council has three main activities: child welfare, the *Broadcaster* and scholarships.

The child welfare committee is supported in part by the Minneapolis Community Fund, and distributes old and new clothing and shoes to needy children in the public schools. During the past year there were 9,428 requests for clothing, which came from all sections of the city. All of these needs were met. There are at the present time 138 welfare chairmen in different parts of the city and forty-one sewing units which are contributing to this work.

The *Broadcaster* is a magazine edited by the Council of Parents and Teachers Associations. It brings to the attention of its readers matters of general civic interest to parents. This magazine is now nine years old. It is distributed free to all parents of elementary school children.

Good Teeth and Good Grades— A Study in Synonyms

Good teeth and passing grades are practically synonymous according to figures in a recent survey by the American Dental Association. Some of these figures are startling:

Chicago taxpayers are losing \$750,000 a year in educating children who fail to pass their grades because of bad teeth.

Atlanta, Ga., with every child up to the standard dentally has reduced from 32 per cent to 8 per cent the number of children who fail to pass their grades, an estimated saving of \$250,000 a year.

In Cleveland, 92 per cent of the children examined have defective teeth; in White Plains, N. Y., 98 per cent.

In New York City, of 40,000 children examined, those with two or more bad teeth averaged five months behind their proper grade.

Bridgeport, Conn., cut down the number of "repeaters" by 65 per cent in a five-year program.

When \$2,000,000 Worth of Buildings Cost \$4,500,000—A Paradox

Fresno learned a costly lesson when it found that its long time financing resulted in an expenditure of \$2.25 for each \$1 of building

By WALTER CROSBY EELLS, Professor of Education, Stanford University

THE high cost of financing school building construction by long term bond issues is strikingly exhibited in an analysis recently made of outstanding school bonds in a study of the cost of education in the city of Fresno, Calif.¹

The Fresno school district, which is composed of the city of Fresno with a population of 52,500 and considerable surrounding territory, has an assessed valuation of \$55,000,000. The outstanding bonded indebtedness in 1930 was \$3,750,000, the last of which will not be retired until 1959. Interest payments between 1930 and 1959 will amount to \$2,898,250 or over 77 per cent as much as the principal. This does not show fully the cost of bonded indebtedness to the city, however.

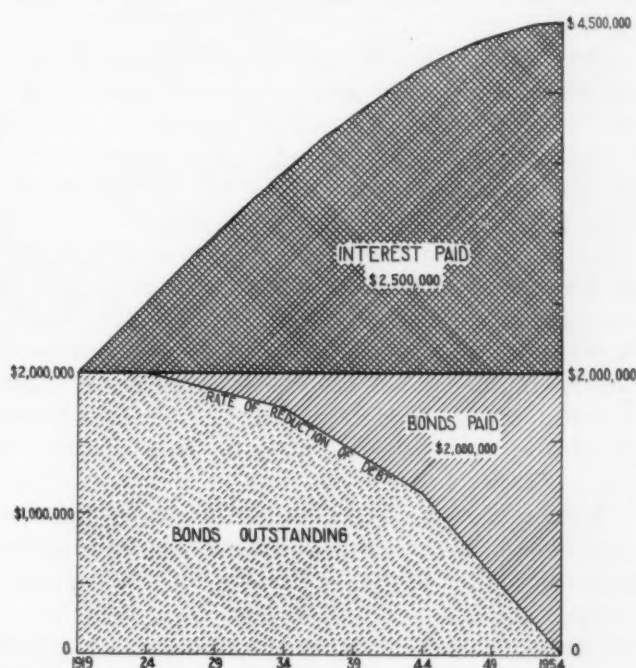
There were two main issues of thirty-five year bonds, one in 1919 and one in 1925, each for \$2,000,000 at 5 per cent interest. For simplicity the 1919 issue is taken for further analysis. The first payment was made five years after date of issue. This was to be followed by payments of \$25,000 annually for ten years, then of \$60,000 annually for the next ten years, and finally of \$115,000 annually for the last ten years.

Interest Is Greater Than Principal

The cost to the district for this method of building, from the sale of thirty-five year bonds, can be portrayed most vividly by diagram. The computations upon which the accompanying diagram were based indicate that when the last of the bonds are retired in 1954 the district will have paid \$2,500,000 in interest on the \$2,000,000 borrowed, or a total of \$4,500,000 to secure \$2,000,000 worth of buildings. Each dollar of building will thus have cost the people of the city \$2.25, the interest amounting to more than the principal. In the first five years from 1919 to 1924, before a single dollar of indebtedness was paid off, the city paid \$500,000

in interest on the one bond issue—enough to have built one or two substantial buildings.

In August, 1932, twelve years after the money was borrowed, \$200,000 or less than 10 per cent of the principal had been paid, but over six times that amount had been paid in interest, \$1,265,000. It is suggested that in the future in Fresno and



This graph shows the result of building a \$2,000,000 plant and paying for it by the issuance of 5 per cent five to thirty-five year bonds.

in other cities the total cost of such long time financing be given serious consideration. Certainly \$2.25 expenditure for each \$1 of building is too high. In fact the California state legislature at its 1931 session recognized the unsoundness of such long term bond issues by reducing the maximum term for which school bonds may be issued from thirty-five to twenty-five years. Even the cost of 5 per cent bonds on a twenty-five year basis amounts to \$1.73 for each \$1 borrowed.

¹Eells, Walter Crosby, Salary and Cost Study of Fresno Schools, Fresno, Calif., May, 1932, pp. 135-38.

Editorials

Price Buying—A Dangerous Possibility

ONE of the concomitants of the panic phase of "pressure cutting" of public school budgets through the efforts of the so-called taxpayers' leagues and others has been the elimination of the quality concept in the purchase of essential supplies and materials.

For this condition the school executives are not so much to blame as are those boards of education that permitted themselves to be bullied into indiscriminate cutting of budget totals regardless of sensible internal balance between activities. The present emphasis on cheapness is fraught with more danger than is apparent to the casual observer.

It was not so many years ago that irresponsible representatives of wildcat producers tramped up and down the rural and village districts in the several states and sold material of questionable value at fancy prices in terms both of quality and of use. Like the proverbial locust, they usually visited a place only once and after that there was little left to pick. Their methods of selling were questionable at the best, even if viewed charitably. There is hardly a superintendent with twenty years of service who does not remember these picturesque forerunners of the high pressure salesmanship era. Stories of their activity have become folklore in many places.

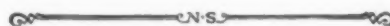
Within the past decade this itinerant broker has practically disappeared. His disappearance closely paralleled the determined entry into the school supply and equipment business of long established corporations, whose products were well known, and whose selling practices were based on the desire to continue, develop and increase their relations with each district. It did not require a long time to drive the peddler out of existence. Schools bought material which gave them real value for their money. The advance in standards of quality in public school supplies, equipment and textbooks is little less than astounding to many who remember the olden days.

The danger of the return of the irresponsible broker is again in sight. The withholding of expenditures for essential materials, supplementary to the educational process, has seriously affected responsible firms with good reputations and heavy

financial investments. The present practice of eliminating quality in purchase consideration and buying whatever is cheapest in dollars and cents is slowly forcing toward bankruptcy those purveyors to the profession, who will not sell shoddy material. The type of purchasing noticeable in many school districts during the past year served as a stimulus to bring the fly-by-night firm back to life.

This practice will be harmful both to education and to the honest purveyor. To buy material on any other basis than quality, and such sales are most frequently secured through pressure and questionable practice, is not only extravagance but has the dangerous tendency of lowering the gradually developing morale in public buying. Forcing the reliable corporation out of the field through competition that cannot be met on a quality basis is helping to destroy the excellent purveying structure that better and more intelligent purchasing practice has permitted to develop.

It is to be fervently hoped that the tendency will not continue. Superintendents and boards of education might well give more careful attention to *what* they are receiving for their reduced expenditures rather than to *how much*. Further, the practice of withholding appropriated sums from essential purchase of books, supplies and equipment and later crediting them to salary appropriations cannot be upheld. The children should not be starved in their supplementary any more than in their teaching needs. We cannot place too much emphasis on balance in budgeting and quality in buying, even with our reduced budgets.



What Are Teachers Associations for?

DURING the 1920's the movement to create dynamic professional associations of teachers reached full maturity. At the beginning of the decade the National Education Association was just beginning to become something more than a convention organization and only a handful of state teachers' associations had passed beyond the first stages of professional organization. Now the national association maintains a competent executive staff of more than a hundred workers responsible for the administration of its program of educational service. All but a few of the state teachers' associations employ full-time secretaries, and many of them have made solid progress in developing the staffs essential for the effective administration of their programs.

The growth of professional organizations of teachers is persistently raising the question as to what should be the functions of these associations.

The national association currently expends more than half a million dollars a year. The combined budgets of the state associations is several times that sum. How may these considerable amounts be expended so as best to promote the advancement of education?

One of the best answers that may be given to this question is being supplied by the activities of the research division of the National Education Association. For its decade of existence this agency is able to point to a series of substantial accomplishments. It has developed the *Research Bulletin* which regularly disseminates cogent data bearing upon educational problems of current significance. The circulation of nearly a million copies of this publication has done much to make the results of educational research function in the typical classroom and in the school executive's office. The reliability of its material is generally recognized. Its popularity is attested by the fact that incidental cash sales of \$100,000 worth of these bulletins have been made in addition to the copies circulated to the regular members of the association.

The research division has made the association the principal source of information on teachers' salaries and salary schedules. Its studies did much to lift the old piecemeal method of paying teachers to the plane of long time planning and salary scheduling. The most authoritative study of wage and salary trends in the last decade lists the work of the National Education Association as one of the major factors responsible for the relatively large gain in real earnings of teachers following 1920. Sound salary schedules have been one of the vital influences that have thus far operated to prevent the wholesale slashing of salary gains made by the profession in the 1920's.

Perhaps, the most significant single service the research division renders to the National Education Association is in connection with the work of its numerous departments and committees. The Department of Superintendence, the Department of Classroom Teachers, the Department of Elementary School Principals and other departments of the association have issued a series of year-books during the last decade which have come to occupy a high place in the field of professional publications of interest to teachers and other school workers.

Most of the authoritative and timely reports issued by the association in recent years have been made possible largely by the effective research and editorial service that the research division has developed for the assistance of departments and committees. The publications dealing with curriculum revision, with character education,

school finance, teacher retirement systems and other important areas have frequently involved the cooperative endeavor of large numbers of people. Without the assistance of the research division, committees and departments of the association usually find it extremely difficult to find essential factual material and to enlist the resources of the profession in the preparation of their reports.

The work of the research division has done much to promote the advance of educational practice along sound lines. It has done it by the means that is most worthy of a professional organization, namely, by research and the dissemination of facts. It has done much to bring the rank and file of the profession to realize the significant rôle of research in educational progress.

The experience of the National Education Association in allotting a portion of its budget to the maintenance of an agency of research has clearly indicated one direction in which the money of professional teachers' associations may be expended with profit. Teachers' organizations anxious to expend their income with greatest results to educational progress might well adopt the slogan, "More Money for Educational Research."—*Norton.*

Walking Backward

EDUCATIONAL literature of recent years is replete with discussions concerning the curriculum. The subject has been approached from many angles. Out of the medley have emerged several significant facts.

They may be considered as: (1) The curriculum consists of a series of selected cultural patterns as an agency for transmission of the social heritage; (2) the curriculum, since it reflects the cultural development of the nation, must be flexible and must change with changing social needs; (3) the curriculum of today carries much deadwood left by former generations, which has not been completely cut off or adapted to meet present day needs. It is not assumed that present curricula are perfect. Far from it. It is extremely doubtful whether it ever will be possible to attain even relative perfection or complete agreement under any field conditions.

Criticism of the curriculum and demands for expansion and changes have not come from within the profession. Much of the groundwork that finally produced the present general revision movements was laid by leaders in fields of activity outside of the profession. The profession itself has tended to resist change and has filled the rôle of follower

rather than leader. The field has not even listened whole-heartedly to the suggestions of its own leaders. However, demands of the twentieth century for a more diverse series of cultural patterns and for greater emphasis on the fine arts, health and hygiene, the social studies and vocational needs than existed in the 'nineties and in the first decade of this century, appear to be well founded and are easily defensible.

The first attack on the schools during the current depression was against the new curricula. The hue and cry of fads and frills as a general battle cry in the struggle for reduction and condensation has been insistently raised. But when any sane curricular offering is objectively examined in terms of faddism, the conclusions are not easily drawn. There are instances of interpretation of trends and needs that may be characterized as silly, but in the main it is doubtful whether any blanket condemnation of these changes is possible.

Many of our professional leaders, to their everlasting credit, have fought vigorously against these emotional attacks and have attempted with some measure of success to check thoughtless slashing of curricular activities. Others have succumbed readily to the popular clamor that would help emasculate the finer developments of the past decade. It is as absurd to eliminate the field of health education and destroy the rather meager developments in fine arts as it is to place education purely on a job basis and reduce to an indefensible minimum essential books, supplies and equipment.

A New Day Demands New Methods

The schools today cannot return to the meager curriculum of the three R's of pioneer days unless they can also turn the hands of the cultural clock backwards. The frontier has gone forever and with it the simple educational institution now so completely immortalized in the emotional haze of the past.

Since the curriculum changes that required a rapidly widening series of patterns and a definite enrichment of subject matter, together with entirely different concepts of teaching both as an art and as a science, grew out of social need, it is patent that the process of stripping cannot be accomplished save at the great cost of producing more poorly trained children and obtaining an infinitely smaller return for each unit of expenditure. Curriculum slashing is one of the poorest attempts in the direction of economy.

The need for rigid economy in public expenditures for the next decade is obvious to all who understand the underlying finance factors involved. This economy should be secured by an intelligent survey of the entire field and by the elimination of

all deadwood and traditional practices both in teaching and in organization that cannot stand the light of objective and searching examination in terms of function. There are many such places to consider in public school organization. The curriculum which, despite the many changes of the last two decades, is still rather meager in terms of cultural values should be protected from unintelligent onslaught. Here is a field for constructive educational leadership and the exercise of professional responsibility. Let us not adopt the practice of walking backwards.

Unwise Economy

PRESSURE exerted to cut public school budgets has developed a number of exceedingly dubious and unwise practices. Outstanding among these is the hastily considered and poorly advised policy of arbitrarily reducing the supply and textbook allowance from 20 to as high as 100 per cent in many instances.

It is obvious how this cut has been made. Faced with the necessity for reducing expenses and unable to change the rigid requirements of debt service and other major contractual services, administrators have seized upon the textbook and supply items as budget points where mechanical reduction is easy. The results of this policy have not been given proper thought or study.

Whatever theoretical considerations may prevail, the present stage of development and practice in public education makes both instructional supplies and textbooks vital parts of the teaching program. Money economy achieved by reducing the supplies to a point far below curricular requirements and, even more dangerous, lowering the quality of paper, ink and pens will tend to lower the efficiency of instruction in certain subjects, regardless of the instructional skill of the teaching personnel. The serious reduction or complete elimination of textbook replenishment tends again to reduce instructional efficiency through the limitation of aids essential to the teacher if she is to do her best work.

Careful analysis of budgetary expenditure indicates that, on the average, the annual cost of textbooks represents only 1.6 cents of the school dollar and that the average cost of instructional supplies is approximately one-half of one cent. Since even radical curtailment of supplies and textbooks will result in only an extremely small total in relation to the entire budget, the current practice of slashing these appropriations below the point of essential minimum needs must be considered dubious economy.

Happy to Say—By WILLIAM McANDREW

ANOTHER blessing the depression brings is the saving of the money institute conductors used to spend on hired entertainers expected to provoke us to laughter instead of to thought.

THE swindler, gambler, speculator, each counts on getting a heap more than he puts in. The manufacturer and merchant say they give nearly as much as they get. The teacher expects to be underpaid and give the most of all. But when citizens run schools on this basis of teacher pay, they are putting their town on the toboggan. You are the one to show them why this is so.

HARD work doesn't debilitate anyone unless he soaks it with a feeling of failure.

SCHOOL can teach a religion that will keep officeholders honest and unselfish, voters alert and citizens eternally vigilant. But a revolution in manner and matter of school is necessary before this is going to be done.

SEARCH the contentious teacher and you'll find an inferiority complex. Find something to praise in his work and you start him on the road to professional health.

MACHINERY has given to Americans what slave labor gave to free born Athenians—leisure to perfect a democracy. The job of directing this leisure to the big idea is yours.

THERE are still pompous gentlemen who dress obsolete theories in the robes they call common sense and eternal verities. We used to have lots of 'em in educational posts. The measurement chaps have shoved the most of them into the discard.

WHEN I was a young teacher, a speaker could put across any sort of a declaration by attributing it to William T. Harris or Charles W. Eliot. Fifteen years ago you could use the name of John Dewey to the same end. Now you can't say "Thorndike declares"; you must phrase it, "Thorndike has found." This change makes talking through the head cover less tempting.

IF YOU call your opponent names, it's a pretty good sign you can't answer his arguments.

THIS huge world will go on today and tomorrow without us if we let it; which is a thoroughly

contemptible idea and a disgrace to us every day day we act in accordance with it.

NO DAY is a success that has not a plan for tomorrow.

TOMORROW is a triumph when you fill today's proposal and make a fresh plan.

HAVEN'T you noticed that another good thing the researchers have established is that you can't measure something that isn't there?

ALL the same, amongst all this racketeering, law breaking and license, every district has a place where order is habitual and continuous—the school.

MY TEACHERS fed me with a belief that right was sure to triumph. This may be a spur to action. It is also a creed for laziness. As the lazy have usually outnumbered the active, you'd better preach for a while that right won't triumph over anything. It is you who do the triumphing or the failing. You might as well recognize that 90 per cent push and 10 per cent right does overcome 90 per cent right with only 10 per cent effort behind it.

ANOTHER blessing of this depression is that the few complainers we had among teachers are not now heard in the general wail. There's no distinction in whining these days.

BEHOLD a truth and a mystery. A teacher and a supervisor honestly discussing education generate more wisdom than is in the sum of their separate brains. Even two moderately dull brains are made to shine by friction, one against the other. Metal workers polish their wares by making them rub against each other in a rolling cylinder. Teachers' meetings can be made to do this to minds.

SOME schoolmasters carry a spotlight always turned on themselves. John Beveridge had the old-fashioned all round lantern that brightened everybody within its radius.

RIDICULE may throw dirty water on its object but it usually spatters back; humor usually washes everything.

YOU have never seen a class of school children who failed to pay back a smile, principal and interest.

News of the Month

Educational Problems to Be Studied at Atlantic City

Professional education and its specific problems will be discussed at the meeting of Section Q of the American Association for the Advancement of Science when the association meets in Atlantic City, N. J., December 27 to 30. Section Q will hold separate meetings as well as joint meetings with allied sections.

Three general groups of discussions have been scheduled for Section Q. The opening session on Tuesday morning will be devoted to reports on experimental studies of general educational problems. Among the topics on the program for the first session are: "The Use of Educational Research," by Prof. A. B. Moehlman, University of Michigan; "Cooperative Research in Secondary Education," by E. D. Grizzell, University of Pennsylvania; "The Determination of a Course in Psychology for the High School," by L. A. Pechstein, University of Cincinnati.

Will Consider Experimental Studies

On Tuesday afternoon there will be a joint meeting of Section Q and Section I. Among the topics that have been scheduled for this program are: "Factor Analysis of Mental Test Scores," by Truman Lee Kelley, Harvard University; "Validity, Reliability and Halo Effect of Human Judgments in Defined Situations," by H. H. Remmers, Purdue University; "Technique for Elimination of Cheating on Objective Examinations," by R. L. Hoke, Morehead State Teachers College, Morehead, Minn.; "The High School Achievement of Fifty-Six Gifted Children," by Edna E. Lamson, State Normal School, Jersey City, N. J.; "The Derivation of Norms," by Stuart A. Courtis, University of Michigan.

The Wednesday morning meeting will consider experimental studies in elementary and secondary education, and general problems of education will be discussed in the afternoon in the form of a symposium. Section Q will hold a joint dinner on Wednesday evening with Section I, Phi Delta Kappa, Kappa Delta Pi and Pi Lambda Theta. The session on Thursday morning will deal with experimental studies of collegiate education.

Among those who will speak are: H. W. James, Alabama College, Montevallo, Ala.; Gordon Hendrickson, University of Cincinnati; Eleanor Olmstead Miller, Illinois College, Jacksonville, Ill.; Norman Grier, Wagner College, Staten Island, N. Y.

The officers for the current year include the following: vice president and chairman, Mr. Courtis; retiring vice president, Ernest Horn, University of Iowa; secretary, Willis L. Uhl, University of Washington.

N. E. A. Group Announces Program for Meeting

The department of supervisors and teachers of home economics of the National Education Association has completed the program for its sixth semiannual meeting, to be held in conjunction with the Department of Superintendence meeting in Minneapolis, February 25 to 27, 1933.

There will be a meeting in the Nicollet Hotel on Saturday afternoon, February 25. A social meeting is scheduled for Sunday afternoon at the Men's Union, University of Minnesota. A round table will be held Monday morning, followed by a business meeting and a program meeting.

Catholic Educational Conference Meets in St. Louis

The Missouri Catholic Educational Conference held its second annual meeting in St. Louis on November 25, in the auditorium of the St. Louis University Law School.

Rev. James P. Murray, superintendent of parochial schools, was chairman of the morning program. Very Rev. Robert S. Johnston, president, St. Louis University, delivered the address of welcome. The chairman of the afternoon program was Francis M. Crowley, Ph.D., dean of the St. Louis University School of Education.

Among the topics discussed were: "Problems of the Adolescent," "How Much Home Work?" "The High School Pupil and the Library" and "School Economy and Educational Psychology."

News of the Month (Cont'd)

Moehlman Stresses Need for Full Educational Support

A plea for greater support of the school systems of the country and a greater appreciation of work that all schools are doing is the theme pursued in an article entitled "The Depression-Demagogue at School," which appears on page 53 of the December issue of the *New Outlook*. It is written by Dr. Arthur B. Moehlman, professor of school administration, University of Michigan, editor of THE NATION'S SCHOOLS.

Dr. Moehlman outlines carefully the need for full educational support at this time if schools are to be maintained and education advanced. He discusses, further, the present system of taxation and public education.

Seek Data on Vacant Rooms in Chicago Schools

A survey is being made of more than 400 elementary schools and branches in Chicago for the purpose of collecting data on the number of vacant rooms, enrollment, seat shortage and pupil load. The survey, which was started on December 5, is being made by seventeen teams of school officials and representatives of the citizens' committee on public expenditures.

With the end in view of reducing school building appropriations to a minimum in the future, the citizens' committee wishes to ascertain whether the school plant is being used to a maximum capacity.

In the \$100,000 report of Dr. George D. Strayer of Columbia University and his associates, made public on June 1 of this year, the number of vacant rooms was estimated at 200. It is expected that the citizens' committee inquiry will reveal more than 400 vacant rooms.

Two reasons are given by school officials for the increase in unused classrooms noticeable in the schools of the city.

One reason is that there is a drop of 5,800 pupils in the elementary school enrollment for this year. This would account for the equivalent of 129 rooms, using the accepted school figure of forty-five pupils to a classroom in Chicago. The drop in grade school population reflects the declining birth rate in the city.

The second reason given is that this year, for the

first time, manual training and household arts have been abolished in the sixth grade. Special rooms for manual training, cooking and sewing that have been left vacant in this manner number somewhere between seventy-five and 100.

School Costs in New York City Are Increasing

New York City last year spent twelve cents an hour in education for elementary school children and seventeen cents an hour for educating high school children, according to the annual financial statistical report, made public by Dr. George J. Ryan, president of the board of education.

The report shows an increased percentage of funds devoted exclusively to the cost of instruction; for 1931 the percentage was 86.5, against 85.9 per cent in 1930. Approximately \$160,000,000 was spent for school purposes during 1931.

The per capita cost of instruction in the elementary schools rose from \$102.84 in 1930 to \$105.11 in 1931, and the per capita cost in the high schools decreased from \$170.93 in 1930 to \$161.95 in 1931, possibly due to an enlarged registration.

The average daily attendance at elementary and junior high schools was 820,675 for 1931, as compared with 815,515 for 1930. In the senior high schools the attendance was 167,609 in 1931, as compared with 147,556 in 1930.

The attendance at evening elementary schools in New York City has been gradually decreasing for several years, although in the evening high and grade schools there has been a steady increase, reaching an average of 38,381 in 1931.

The total accumulated cost of the public school plant of New York City at the end of 1931 was \$466,782,416, an increase over the preceding year of 4.3 per cent. School officials believe the \$500,000,000 mark soon will be passed.

New Buildings Provide Quarters for 1,000 Pupils

Three new school buildings have recently been completed in Norfolk, Neb., which will give new quarters to approximately 1,000 pupils. Two of the buildings are of eight rooms, and one has four rooms. All three of the buildings are fireproof and are fitted with modern equipment.

News of the Month (Cont'd)

Report Describes Year's Activities of Office of Education

The annual report of the U. S. Office of Education has been made public and lists the following services as among those performed by the office during the last fiscal year:

1. Completed the national survey of secondary education, the first ever made (twenty-eight monographs will report findings).
2. Studied new problems arising in public school administration.
3. Evaluated foreign education credentials from 819 sources in seventy different political divisions.
4. Supplied parents, schools, parent-teacher associations, leaders of parents' groups, leaders in national, state and local study and reading groups with facts to help them in understanding their children and in dealing with problems of child training.
5. Studied the relation of physique and physical condition to intelligence and scholarship.
6. Staff members gave professional assistance to many groups, including the Pennsylvania State Department of Public Instruction, General Federation of Women's Clubs Education Committee, state departments of education, and the National Congress of Parents and Teachers.
7. Surveyed school buildings at the request of state and city educational authorities and studied school building problems common to all communities.
8. Organized a service to collect important facts on education of approximately 15,000,000 native peoples in outlying parts and continental United States, and for the dissemination of information collected.
9. Supplied advice regarding the merging of institutions of higher learning in North Carolina and South Carolina.
10. Cooperated with the U. S. Department of Agriculture in surveying educational opportunities offered by counties of the Southern Appalachian Mountain region, and also collected information on the education of Spanish-speaking children in Arizona, California, Colorado, New Mexico and Texas.
11. Collected statistics required by law.

The Office of Education's program of major educational surveys was affected by government economy, the report points out.

Staff members of the office, during the year,

made a survey of public schools in Youngstown, Ohio, "cooperated with states engaged in various steps of consolidation . . . assisted in the survey of higher education in Mississippi," and evaluated the program of the demonstration school of Georgetown, Del. The office continued its series of home-making education conferences, one of which was held in Amherst, Mass., and another in Minneapolis. Needed research in the homemaking education field was stimulated. Regional supervisory conferences were sponsored.

The office of education library each month served more than 200 persons not on the regular staff and 150 by interlibrary loan. The library has 150,000 volumes, one of the largest collections of education books in the country. Information vital to 4,000,000 Negroes eligible for education was gathered, useful facts were given to schools providing educational facilities for children who deviate from the normal (a new specialist was provided in this field) and a survey was made of the use of tests in city schools throughout the United States.

Other activities included: A study of nursery schools, investigation of guidance and industrial education problems, preparation of the first of a series of curriculum preparation guidebooks helpful to school superintendents and curriculum committees, inspection of Howard University, maintenance of a record of educational legislation, aid to land grant colleges, collection of information on important aspects of commercial education and education by radio, and collection of sources for valuable visual education materials. Staff members made nearly 300 addresses before national, state, regional and local groups.

Age of Educable Child Raised One Year in Mississippi

A constitutional amendment raising from five to six years the minimum age of educable children in Mississippi was approved by the voters at the election, November 8.

W. F. Bond, superintendent of education, states that the higher age will reduce the list of educable children by 12.5 per cent, cutting approximately 100,000 from the school enrollment. The so-called school age amendment will not become effective until formal action is taken by the state legislature, which will not meet in regular session until 1934.

News of the Month (Cont'd)

Memorial Service Held for Jane A. Neil

A memorial service for Jane A. Neil, district superintendent of special schools, Chicago, was held at the Spalding School for Crippled Children, Chicago, following Miss Neil's death on October twenty-ninth.

Miss Neil was internationally known as an educator, especially for her work in the education and rehabilitation of handicapped children. She instituted many new courses and treatments in the schools under her supervision. The Spalding School of which she was principal for fourteen years, was the first of its kind in the country, and it is visited yearly by educational and medical authorities from foreign countries.

New York Superintendents Request State Aid for Local Schools

Resolutions reaffirming its belief that every child is entitled to a full program of education and declaring its opposition to any reduction of financial state aid to local school systems were adopted by the New York State Council of School Superintendents at its annual meeting held recently at Saranac Inn.

James B. Wells, superintendent of schools, Roslyn, was elected president of the association. Alexander W. Miller, superintendent of schools, Glens Falls, was elected vice president, and E. L. Ackley, superintendent of schools, Johnstown, was re-elected secretary-treasurer.

Will Study Physical Education Problems

The St. Louis board of education has requested Henry J. Gerling, superintendent of schools, to make a thorough study of the problems involved in the educational program of physical education and recreational activities and of competitive interscholastic athletics, and to make recommendations as to the continuance or discontinuance of interscholastic athletics.

Dr. D. C. Todd, a member of the board of education, who introduced the resolution, stated that

in his opinion "the system of athletics should be unified. Under our present system there are a lot of loose ends which exist because they have been traditional practices. Athletics do a great deal toward making a person a better sportsman, a better citizen and a better student. There is no reason why the program of athletics should not be incorporated in our scholastic program, as an integral unit, not as a thing that subsists solely upon the sale of tickets by the schools."

Report Gives Facts on Large City High Schools

The following interesting facts in regard to large city high schools have been released by the United States Office of Education:

There are thirty high schools in the United States which now have an enrollment of 5,000 or more pupils. Fourteen city high schools have more than 6,000 pupils enrolled, of which five have enrollments in excess of 8,000.

New York City has the largest high school, and in separate enrollments it leads all American cities. The De Witt Clinton High School there has an enrollment of 10,059 boys.

The modern city high school faces the same problem as the large city university, namely, the problem of handling almost unwieldy numbers. Separate schools in New York City, Chicago, San Francisco, Indianapolis and Jersey City, N. J., have more than 5,000 pupils.

Brooklyn has one school with 9,944 pupils, the New Utrecht High School, and another with 8,711, the James Madison High School. The James Monroe High School, New York City, has an enrollment of 8,572 compared with the next largest school, the Carl Schurz High School, Chicago, which has 8,106 pupils. The Austin High School, Chicago, ranks eleventh, with 6,547 pupils.

The Evening High School, San Francisco, has an enrollment of 5,728 pupils, the Arsenal Technical School, Indianapolis, 5,421, and the Dickinson High School, Jersey City, N. J., has approximately 5,000. The Roosevelt High School and the Albert G. Lane High School, Chicago, have more than 5,000 pupils each. With the exception of the individual schools in the cities mentioned, the other large schools are either in New York City or Brooklyn.

In the Educational Field

F. M. BLACK, director of high schools, Houston, Tex., and dean of the Houston Junior College, died on November 13. MR. BLACK, who was fifty-two years of age, had been in ill health for several years, but was considered to be on the road to recovery when death came. He had been connected with the Houston school system for twenty-six years.

CHARLES BOHL is the new superintendent of schools, Warren County, Ohio, succeeding FIELDER B. HARRIS.

DR. MICHAEL C. DONOVAN, superintendent of schools, Waterbury, Conn., died suddenly on November 16. DOCTOR DONOVAN had been engaged in school work in Waterbury for the past thirty-four years. THOMAS J. CONDON, who has been associated with the Waterbury schools in an executive capacity for the past eleven years, is the new superintendent.

GLENNIS H. RICKERT has been appointed superintendent of schools, Kane, Pa.

FLORENCE HALE, who completed her term as president, National Education Association, at the recent Atlantic City, N. J., meeting, automatically becoming first vice president, has resigned her post as agent for rural education for the state of Maine to assume the full-time editorship of *The Grade Teacher*.

DR. JAMES J. DONAHUE was recently appointed supervisor of medical and health service in the public schools of East St. Louis, Ill.

JOSEPH REICHERT, superintendent of schools, Bricelyn, Minn., for the past sixteen years, has resigned his position. He had been engaged in school work for thirty-three years. H. W. MORTENSON, formerly of Red Wing, Minn., is the new superintendent at Bricelyn.

ROY L. VANSOTEN, acting supervising principal for the past four years, has been named superintendent of schools, Mechanicsburg, Pa.

OSCAR F. STATON, superintendent of schools, Sonoma County, California, died recently at his home in Sebastopol, Calif., of heart disease. He was sixty years of age at the time of his death. MR. STATON was prominent in the California State Teachers' Association, and was president of the Sonoma County board of education. EDWIN KENT,

who has been engaged in educational work in Sonoma County for many years, has been appointed MR. STATON's successor.

E. R. LINGERFELT, superintendent of schools, McMinn County, Tennessee, was recently elected president of the East Tennessee Education Association, an organization with a membership of 5,000 teachers. W. A. BRICKEY, superintendent of schools, Spring City, Tenn., was elected vice president of the association.

HARRY S. ARMSTRONG, for seventeen years superintendent of schools, Hicksville, Ohio, died recently of heart disease. MR. ARMSTRONG was president of the Northwestern Ohio Teachers' Association.

CECIL L. GREEN, superintendent of schools, Elk County, Kansas, died recently. MR. GREEN's successor is his widow, OPAL E. GREEN.

RALPH R. SMITH, formerly supervising principal, Lansdale, Pa., has been appointed superintendent of that city's school system.

LEONARD L. WOODRUFF has been appointed superintendent, Des Moines County, Iowa, rural schools, succeeding MARGARET HELT, resigned. MR. WOODRUFF was formerly superintendent of schools, Oakville and Sperry, Iowa, and during the past year was graduate assistant instructor, University of Iowa.

EDWARD M. McDONOUGH, assistant director of evening and summer schools, Boston, has been appointed head of the Boston Trade School.

FRANK E. CONVERSE, for thirty-five years superintendent of schools, Beloit, Wis., has retired. MR. CONVERSE had been associated with the Michigan schools for ten years preceding his appointment at Beloit. D. F. R. RICE is the newly appointed superintendent at Beloit.

M. A. POVENMIRE is now superintendent of schools, Amanda, Ohio. He was formerly superintendent of the Meeker, Ohio, schools.

J. E. BOWERS has succeeded ALBERT HENSLEIGH as superintendent of schools, Seneca, Kan.

LEWIS P. HOLLIDAY, formerly superintendent of schools in several Michigan towns, including Bellaire, East Jordan, Lake Linden, Crystal Falls and Hillsdale, died recently in Chicago where he was engaged in the commercial field.

In the Educational Field

DR. THOMAS EDWARD FINEGAN, who was for twenty-one years connected in various capacities with the New York state department of education, retiring in 1918 as deputy superintendent to become Pennsylvania superintendent of public instruction, died on November 25. DOCTOR FINEGAN was sixty-six years of age. Since 1928 he had been president of Eastman Teaching Films, Incorporated, Rochester, N. Y. In 1917-18 DOCTOR FINEGAN was president of the Department of Superintendence of the N. E. A.

AUBRY DAVIDSON is the new superintendent of schools, Webber, Kan.

DR. ABBOTT LAWRENCE LOWELL, one of the world's foremost educators and for the last twenty-three years president of Harvard University, resigned on November 21. DOCTOR LOWELL will soon pass his seventy-sixth year.

ROSE LEES HARDY, assistant superintendent in charge of elementary instruction in the schools of Washington, D. C., died recently.

W. R. SCAFF, formerly superintendent of schools, Granite Falls, N. C., has been appointed superintendent of schools, Elkin, N. C. SAMUEL THOMPSON succeeds to the superintendency of the Granite Falls schools.

HERBERT M. SLAUSON, who served for many years as superintendent of schools, Ann Arbor, Mich., and who has always taken an active interest in the work of the school of education of the University of Michigan, recently gave his professional library to the school of education.

DR. J. V. BREITWIESER, dean of the school of education and director of the graduate division of the University of North Dakota, was elected president, North Dakota Education Association, at its recent meeting in Grand Forks.

RAY FUNDERBURK, Cumberland County, North Carolina, has been elected to the superintendency of the New Hanover County, North Carolina, schools. A. B. WILKINS, formerly assistant superintendent, Cumberland County, is now acting superintendent there.

CLARENCE MENDENHALL has been named superintendent of schools, Burr Oak, Kan.

M. ETHEL BROWN, supervisor of kindergarten and primary grades, Schenectady, N. Y., died re-

cently. Previous to her Schenectady appointment in 1923, MISS BROWN conducted institutes in Illinois and Washington, served as editor of the primary column of the *Northwest Journal of Education*, and acted as director of state courses of study in Illinois.

A. C. KINGSFORD, superintendent of schools, Baraboo, Wis., has been elected a member of the Board of Visitors, University of Wisconsin.

DR. LIVINGSTON FARRAND, president of Cornell University, was elected chairman of the board of trustees, Carnegie Foundation for the Advancement of Teaching, at the annual meeting of the board on November 17.

DR. FRANCIS L. PATTON, formerly president of Princeton University, died on November 25. DOCTOR PATTON, who would have been ninety years old in January, was the twelfth president of Princeton.

C. L. BAILEY, superintendent of schools, Greenville, Ohio, was recently elected president, Western Ohio Superintendents' Round Table.

L. A. WOODS, Waco, Tex., has been elected state superintendent of public instruction.

LLOYD A. MOLL has been elected superintendent, township schools, Upper Merion, Pa. For three years prior to his election as superintendent, MR. MOLL served the district in the capacity of supervising principal.

J. G. MARCH, superintendent of schools, Tioga County, Wellsboro, Pa., has been elected president, central convention district, Pennsylvania State Education Association.

Dayton Schools Operating on Part-Time Basis

The schools of Dayton, Ohio, are operating on a part-time schedule this year. The junior and senior high schools are opened for three days a week and the elementary schools are operating on a half-day session basis. The junior and senior high schools are in session only on Monday, Wednesday and Friday.

The new Paul Lawrence Dunbar Junior High School, which was recently completed in Dayton, will be unoccupied this year, it is reported, due to lack of funds to equip it.

Your School— Its Construction and Equipment

A Department Conducted by CHESTER HART, B.Arch., Chicago

A Resilient Wood Fiber Flooring for School Buildings

Floors and floor coverings used in school buildings must meet rigorous and unusual requirements. They must have impenetrability and density of surface combined with resiliency and sound deadening qualities. This is difficult to achieve since the surface can be only so hard or the strength and toughness of the material will be destroyed by cracking. The floor must be easy to clean and the cost of installation and maintenance must be low. The special conditions to be met in shops, gymnasiums, and laboratories further limit the types of floor that may be used in these rooms.

Natural wood flooring was widely used for many years, but the increased cost of this material and its installation has resulted in the development of a great variety of manufactured flooring substances. One of the newest of these products is an all wood fiber floor tile made by the Masonite Corporation, 111 West Washington Street, Chicago. Masonite Cushioned Flooring is made from wood chips that have been exploded under steam pressure into long fibers. These cellulose fibers are interlaced or felted together into thick mats which are subjected to heat and tremendous pressure in hydraulic presses to form the Presdwood boards. The finished flooring is made entirely of wood without any chemical additions because the natural cementing constituent or lignin is retained and used as a binder.

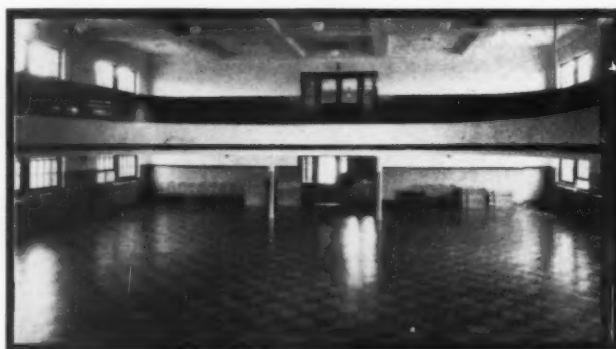
Maintenance Is Simple

The two outer surfaces of the flooring tile are made of tempered Presdwood. The recently developed process of tempering increases the density, nonabsorption qualities, strength and toughness of this material. The middle layer is Quartrboard which is made by the same process as the Presdwood, but it is pressed to a lesser degree and hence is more resilient. The two outer layers are glued with a waterproof glue to either side of a single thickness of Quartrboard to form a three-ply laminated board one-half inch thick. Two adjacent edges of the tile are milled to receive a Presdwood spline which is glued into place. The

other adjacent sides are grooved to receive the splines so that when a floor is laid the entire floor is interlocked and matched together.

The flooring blocks are made in squares 6 by 6 inches, 9 by 9 inches and 12 by 12 inches. Strips 3 by 47 inches, 6 by 47 inches, 9 by 47 inches and 12 by 47 inches may be used where borders are desired. Each block has one light brown and one dark brown surface, either of which may be used to form two tone patterns of great variety. By proper selection of sizes either regular or random patterns or a solid color floor may be obtained.

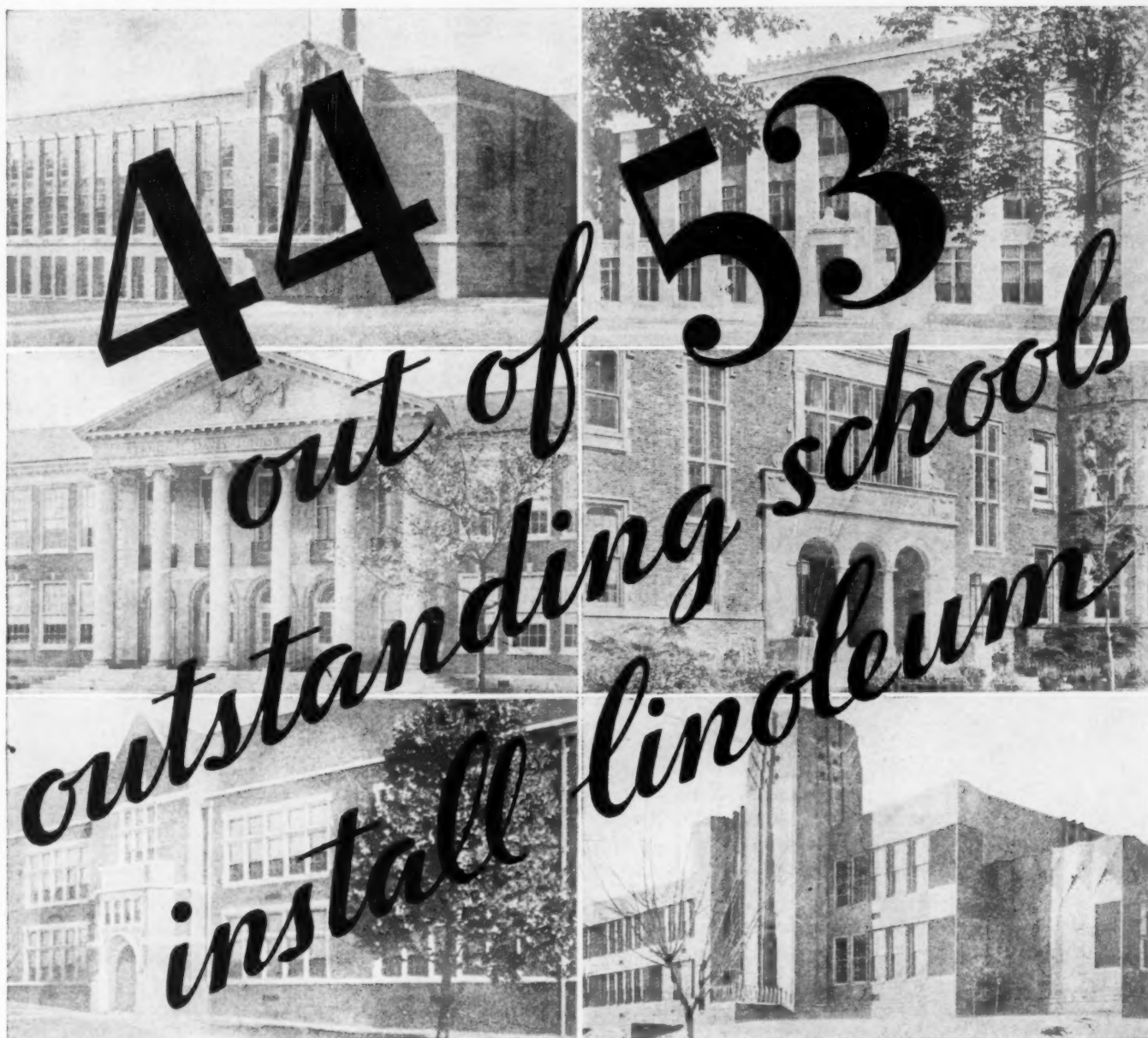
This new flooring may be laid over concrete or wood subfloors, or over an old floor that has been



The auditorium floor at St. James Parochial School, Duluth, Minn., is covered with Masonite Cushioned Flooring.

properly prepared. Concrete floors below grade or on the ground level should be waterproofed by the method best suited to meet local conditions. All concrete floors must be floated to a hard, smooth and even finish to receive the finished flooring. In old work where the concrete is rough a first layer of Quartrboard should be cemented to the concrete to give a smooth surface and added cushion for the finished floor. Wood subfloors should be scraped and planed to a true, smooth and even surface. After the subfloor has been properly prepared the finished floor is laid over it in a mastic cement.

The flooring should not be sanded at any time after being laid. The only finishing that is necessary after the floor is laid is damp mopping to remove dust and dirt in preparation for waxing or oiling. The recommended finishes are two applications of regular floor wax, or water emulsion



"THESE are outstanding school buildings," say two leading architectural magazines, in articles which recently appeared in their pages. Fifty-three schools were featured. It is significant that in forty-four of these buildings linoleum floors had been installed!

Resiliency is the reason for this 83% selection of linoleum. Whether the school is primary, grade, high, or university, located in California or Massachusetts, school architects specify floors that are friendly underfoot — cushioning, quiet, warm, and clean.

Small wonder, then, that of the 44 schools using linoleum, all sixteen mentioned in one magazine

and nineteen out of twenty-eight in the other, had floors of *Sealex* Linoleum. For these sturdy floors are, first of all, resilient.

If you would like to know some of the many other reasons why leading architects specify *Sealex*, ask us for complete data. Write our Architectural Service Department and get the facts about Bonded Floors service, backed by our rigid guaranty.

CONGOLEUM-NAIRN INC. KEARNY, N. J.



wax, which is less slippery, or an application of a penetrating oil.

Maintenance for this type of floor is the same as that needed for any ordinary waxed or oiled finish, but washing compounds that are alkaline or caustic should not be used. The floor is, however, relatively impervious to acids. In mopping only a reasonable amount of water should be used, and flooding should be avoided.

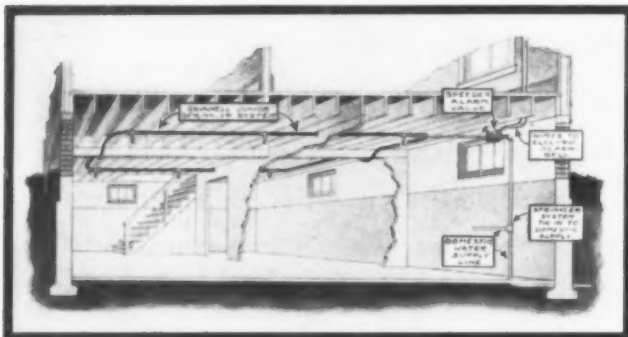
The tempered wearing surface is much harder than natural wood, and it is impervious to surface dents under the weight of heavy furniture or movable chairs. With this flooring in classrooms it is possible to install either movable or stationary seats. Other places where this type of flooring may be successfully used are the laboratories, other than the chemical laboratory, the offices, the library, the assembly room, the auditorium and the corridors.

The cost of the flooring will vary with local conditions, but in general it is within the same price range as a battleship linoleum floor.

A Fire Protection Device for the Small School

Fireproof construction and protective devices have often been considered too costly for the small school building, but their value as a safeguard has never been doubted. To achieve adequate protection at a price proportionate to the cost of these small buildings has been a difficult problem for the administrator and the architect to solve.

A fire protection device called the Grinnell "Junior" Sprinkler System is being manufactured by the Grinnell Company, Providence, R. I., especially for installation in small school buildings. The device is low in price and can be installed



This diagram shows how the sprinkler system is installed.

easily either during the erection of the building or later. It is connected to the regular water supply line and neither pressure pumps nor tanks are required. The resulting lower insurance rates and

the fact that the device requires no maintenance should make this type of installation self-liquidating.

The system is connected to the main water supply by a one-inch brass pipe which leads to an alarm valve that is wired to an electric alarm bell. The alarm valve is also a shut off valve and has a drain connection to prevent water in the pipes from freezing should the building be closed during the winter. Another brass pipe connects the valve to the inlet fitting, which is connected to the sprinkler sections. Each sprinkler section consists of a sprinkler head tee permanently attached on one end to twelve feet of three-quarter-inch copper tubing. The other end of the head tee is provided with a compression tubing connection and a compression nut for ease in joining the adjacent section. The copper tubing may also be obtained in straight lengths up to twenty feet and in coils up to sixty feet. These lengths will allow extending a supply line and a return line from the basement to the attic, and make it possible to reach isolated points when sprinklers are not needed in the intervening rooms. The points of greatest fire hazard in the smaller schools are the basement, the storage rooms and the kitchens.

When full fire protection cannot be incorporated structurally because of the prohibitive building cost, protection can be obtained by the installation of an economical sprinkler system of the type described.

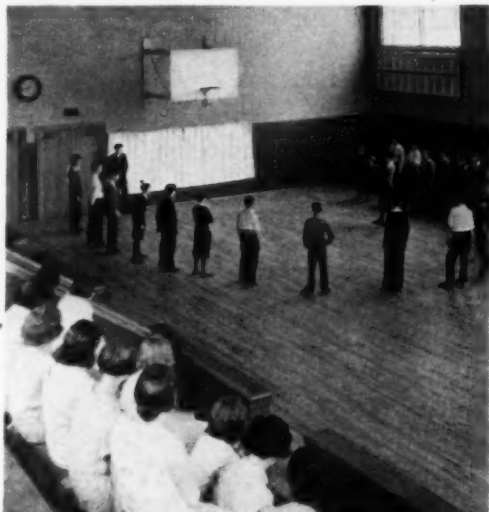
New Faucet Suggests Changes in Hand Washing Procedure

The requirements for hand washing equipment in schools demand speedy performance with a minimum amount of water consumed. Shorter time and less water used mean either a saving in the number of lavatory installations, or a shorter total period for hand washing and a lowered operating cost.

A new type of lavatory faucet, the "Metro," made by the Crane Co., 836 South Michigan Avenue, Chicago, is opened by a downward push, and delivers a flow of water as it slowly and automatically closes. The amount of flow can be adjusted over a reasonable range by the adjusting screw attached to the plunger, but concealed within the body of the faucet away from tampering fingers. The fixture is a cup-leather plunger type, and may be taken apart to replace parts subject to wear without disturbing the valve body.

The steps of a possible hand washing procedure with this new faucet might be as follows: (1)

The Sauquoit Valley
Central School
Sauquoit, New York
Randall and Vedder
Architects



INTERNATIONAL ELECTRIC TIME and PROGRAM CONTROL

... for long lasting EFFICIENT ECONOMY

Two of the most recent International installations are in the Columbia Elementary School at Peoria, Illinois, and the Sauquoit Valley Central School at Sauquoit, N. Y.

In both communities every effort has been made to provide educational facilities second to none; the selection of International equipment, therefore, is a high tribute to its merits. Convincing evidence of the superiority of International Time and Program Systems is a widespread use in schools of every kind throughout the United States . . . from small rural schools to the country's largest universities.

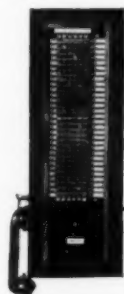
Such unanimous approval and selection are not surprising when facts are considered. International Systems operate entirely without human assistance. Clocks and bells cannot contradict each other. No one ever has to go on a "checking tour" of clocks because that time-wasting duty is performed automatically by the system itself, permitting the entire school staff to give undivided attention to pupil instruction.

Teaching efficiency is increased fully ten per cent . . . an appreciable economy these days. Furthermore, such results are permanent in effect because International Systems are built to give many years of accurate and dependable service.



INTERNATIONAL
MASTER CLOCK

Detailed information about International Equipment may be secured from factory-trained representatives in every principal city.



BELL AND TELE-
PHONE CON-
TROL BOARD

INTERNATIONAL TIME RECORDING CO. DIVISION International Business Machines Corporation

International Time Recorders and Electric Time Systems—International Electric Tabulating and Accounting Machines—International Industrial Scales—Dayton Money weight Scales and Store Equipment

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Branch Offices and Service
Stations in all Principal
Cities of the World

L. SONNEBORN SONS, Inc. GUARANTEED PRODUCTS

DON'T GAMBLE with Ordinary PAINT for SCHOOL FLOORS!

Use a special cushion treatment which
outlasts all others and saves labor and
money for your school . . .

SONNEBORN'S CEMENT FILLER and DUSTPROOFER is a special cement filler and dustproof. It is composed of tough, resilient gums and varnish oils that penetrate the pores of a floor, binding fine particles of cement and sand together, so that they resist the friction of traffic.

It is a simple, inexpensive job. One man, working with a long-handled brush, can cover 4,000 square feet of floor in a day. In twelve hours the surface will be dry—and the dust nuisance ended.

You may retain the concrete color of the floor by using Sonneborn's Cement Filler and Dustproof in the transparent finish. Or, if you wish to work out a special decorative scheme, you can have it in a wide variety of colors.

Remember, you can't expect ordinary wall paint to act as a cushion between your floors and traffic. You need this special treatment.

Hundreds of schools have proved it best.

Full specifications will be found in Sweet's Catalog, Page A 354

Note these famous Sonneborn savers of school buildings and maintenance expense. The coupon below will bring you detailed information

LAPIDOLITH

—A chemical liquid hardener for preserving and dustproofing concrete floors.

LIGNOPHOL

—For finishing, preserving and wearproofing wood floors.

HYDROCODE COLORLESS

—For waterproofing exterior of exposed walls.

CEMENT FILLER AND DUST PROOFER

—A decorative and dustproofing treatment.

CEMCOAT EXTERIOR AND INTERIOR PAINTS

—Tough, durable paints that produce an attractive finish. Various colors.

MAG-I-SAN CLEANING POWDER

—For economy and thoroughness in cleaning floors, walls, general utility.

AMALIE WAX

(Liquid and Paste)

—Durable and dependable wax for every purpose. A Sonneborn guaranteed quality product.

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L. SONNEBORN SONS, INC. N.S.—12

88 Lexington Avenue, New York

Please send me, without obligation, demonstration samples and literature on: Lapidolith; Lignophol; Cement Filler and Dustproof; Cemcoat Exterior and Interior Paints; Hydrocode Colorless; Mag-I-San; Amalie Wax; (Check products that interest you.)

Name _____

Address _____

Company _____

Position _____

Push the faucet handle downward for the first flow of water to wet the hands; (2) soap the hands and wash; (3) rinse the hands in a second flow of water; (4) wipe off faucet handle with a towel while drying the hands.

One of many possible methods, this hand washing procedure does not require waiting for the



The slow closing automatic faucet with plunger removed to show the flow regulating screw.

lavatory bowl to fill, the condition of which is always hygienically doubtful, and a minimum of water may be used. Since only one faucet can be used with this suggested method, it would be desirable to supply tempered water to the fixture unless cold water were deemed satisfactory.

With this type of fixture a variety of new hand washing procedures may be developed to fit the individual needs of each school.

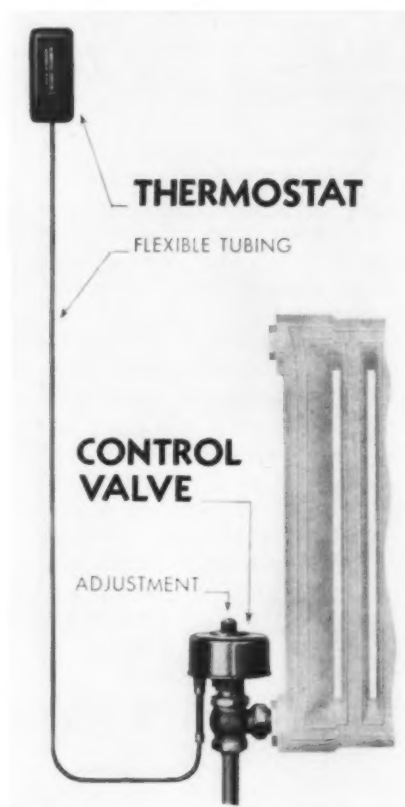
Providing Thermostatic Control for Classroom Heating

The thermostatic radiator valve has definitely brought into heating a new type of control that should be considered for classroom heat regulation. While this type of control has not the same sensitivity that pneumatic and electric systems possess, it still is capable of accurate and gradual regulation. It has the decided advantages that no compressed air is needed, no piping for wire or air is required, and its easy installation makes it an economical system to install. The thermostatic valve may be applied to any type of radiator, unit heater or unit ventilator.

The thermostatic valve made by the Powers Regulator Company, 2720 Greenview Avenue, Chicago, is a self-operating regulator that is designed to control the temperature of rooms heated by direct, indirect or concealed radiation of the

vacuum or vapor type of heating systems. The device consists of a diaphragm operated valve connected by flexible tubing to a thermostat which can be obtained in two styles, the bulb and the wall types. For exposed or concealed radiators, the bulb type of thermostat should be used when there is sufficient room to place it under the radiator. It should be in a central position, but should never be nearer the floor or radiator than 21½ inches. When it is not possible to place the bulb type properly, the wall type of thermostat should be used. It should be mounted on the wall or window casing 24 to 48 inches above the floor, but never directly above the radiator. The bulb type of thermostat is recommended for the recirculating type of unit ventilators, and it should be located in the path of the incoming air.

The thermostat is connected to the radiator valve by flexible copper tubing, and contains a sensitive fluid which expands and generates a pressure due to the heat of the atmosphere sur-



The wall type of thermostat attached to a radiator control valve is shown in this picture.

rounding it. This pressure is communicated through the flexible tubing to the diaphragm of the valve, either opening or closing the valve to maintain the desired room temperature.

Temperature adjustments are made by a concealed screw under a knurled cap. Once this has been adjusted for the proper room temperature the valve will automatically maintain that temperature.

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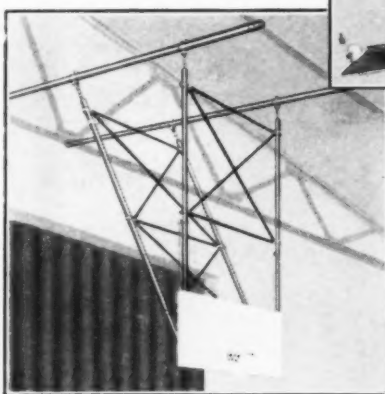
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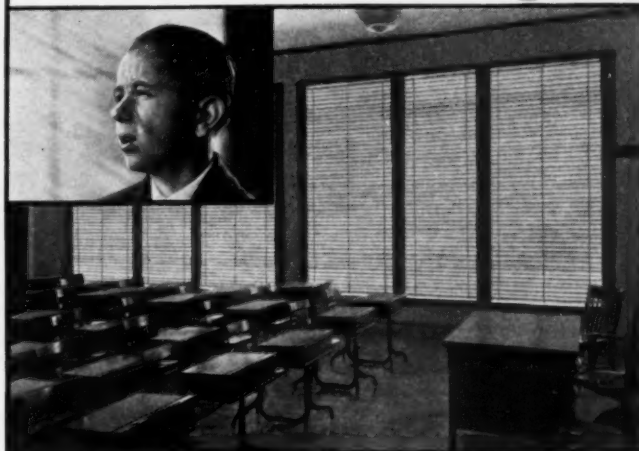
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